





# International Abstract of Surgery

SUPPLEMENTARY TO

Surgery, Gynecology and Obstetrics

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Volume XXXVIII

January to June 1944

PUBLISHED BY  
THE SURGICAL PUBLISHING COMPANY OF CHICAGO  
145 EAST ERIE STREET CHICAGO

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J E F G C THA I R T W L E T T H W I S T O C E R R I C H A R D W W I L L U M M R J N I  
I T J R I L D A W K Y S D I D S I L A C A N A D A A M I F I R H E R B E R T  
I H C C F I S T R R L N C L A N D S R O T J N R E R O L P R F I A H A R R Y  
I T T A H I U B Y

ROENTGENOLOGY

AMERICA I F W C L I R C D C A R J A M T C F L C F C R A C O I F T V M  
H H H F C R C J H T U N S A V Y L I C R E F F P E L H I P P E T T E R  
C A N A D A S C M I N A N H I I I

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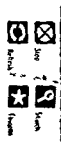
AMERICA I V I B W N H D B S A D H H F R J I I I W I L L I A M  
C P B J P F Y R B E L R I J F W A K C S D W T W I A M H  
W I C F Y A W H R A M W I N C L A N D J N B I F R W T H I T S S I R S C O T  
L A N D S I R C F C A B R A M L T R I Y

SURGERY OF THE EAR

AMERICA I A I W D M A C L T F I J F M E K N O L H I I F S M C U F  
S C A N A D A H S B F T T L N C L A N D A R I H C I T H S C O T I A N D A L O G A N T R E R  
I R I A N D S R T H W I

SURGERY OF THE NOSE, THROAT AND MOUTH

AMERICA J C B I T M E L F H T J H R R I C H A L I E R J S O J H N  
M K E C P M R I J H F I R A U S T R A L I A A W J B A



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JANUARY 1924

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*Supplementary to*  
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by I t n f the Gl d  
LAFWEN The T e m e t of P og es e F runculos s  
of the F ce  
CADENAT F f tula of the Chi  
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- VANDER HOEVE J Th k l t ns Bet e n th Eye  
I E r  
BELL G H F rther O l e t t s a N M thod  
f P e v n g l o t o p e t Int a Ocul r Infec  
t R p o t f l d S e e f o l C es  
McL N W M y Exp i c in W k i g sth D  
B r quer B t l a

#### Ear

- LONS H K O l t M J C m p l cat g Oper t i n  
the C e n C gl n  
VANDER HOEVE J Th Rel t i B t e the Gy  
nd F r

#### Nose

- PETRELLI A A t e f Rh yma  
W RMS C a d Ch al r G R d g a p h y f th  
S n e f l l e l a c e  
ARBUCLIE M J Syst m Ma f s t t s f S p  
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- HIRSCHFELD I A cent I f c t n of the Mouth

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- SON ENSC LI R M h l Inje t i n a a P o s h l  
A d j u c t to T o l l e c t m y n d e L o c l i n a s t h s a  
H RK ISS t f a f R o c k J L I s t p e r a t e  
C o m f t n T l C a e  
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- GOBBE I C o g e n t a l C y s t s f the N e k

- ORATOR V N e v l o n t s of V v in the Evalua n f  
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C n t r i b u t i o n on the G o e t c h A d r e n l i n T e s t 7  
BOOTH y W M a d S A N D I F O R D I Th T o t l a n l  
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JUST E The P t p e r a t i v e T e m p a t u r e F o l l i g  
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FASIANI G M M a l i g n a n t A d e n o m a of the P r a  
t h y r o i d 8  
MAIER O I n t a s t r c h e l T u m o r of the T h y r o i d  
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on the G s e r i a n G a n g l i o n 8  
BAGLEY C JR E x t i H a e m o h a g i c E t r a s a  
t n f o m the V e n u s S y s t e m f C a l e w i t h C l n  
c l S y n d r o m e A k p o r t f T h e e F a t a l C a s e s  
w i t h T h N e c r o p e s 9  
MARCHAND L a d A D A M E f t a l S t t u s f p l e p  
t c s i n a W m n w i t h a G i t e r W h o W a s S u b  
j c t d t o O p h e c t o m y H y p o p h y s e a l H a e m o  
t h a g 9  
SCOTT S L e f t T m p o s p h e n o i d a l A b s c e s A m n e a  
f N a m e s f O b j e c t s C e r e b l l A b c e s S u l l n  
L o m a n d A p o e R e r y a f t O p r t n D  
n g A t i f i c i l l e p i a t o n C e b l l a r A b s c s  
Y e W e e k s A f t e r the O e t of A c u t e O t i t i s M d a  
o the R i g h t S i d e 9  
FA L E Y O N W P I t d r l S u r e r y i n I t s R e l t n  
t o A b c s f the B a n 1  
WEIGELDT W A I f f i t i n the D a g n f B a n  
and S p l C o r d D e a s e 11  
DENK W The D a n g e r of L u m b a r E p h l o g r a p h y  
i n C a s e s of B a n T u m o r s 11  
FREDEL S The R o e n t g e n D a g n o s i s f T u m o r s of  
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### Adrenal Kidney and Ureter

H L FLD H d P I P E R H Th Se t ty f  
th Ad l t l l t d M thod f l  
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C O P E L A M A I m Hyd eph s  
W h S m l t l O C y t

PETERS W S C l l d A p t e R l Pyuri  
HUES FR Th F rly D g f T b c u l o u s of  
th K d y

FR UD RG T b l s f th B l d d a d  
K d y

P P Th T h q e f N p h t m y C s e f  
L a r g l g l S t

S M M J T l Tr I th  
S g r y f th K l y

E RO G l p l t l l y f th K l y  
O S d B l e N p h e t m y th O th

Ad d C f R l T b e l s  
N E L M A C f D b l K d y R e m d by  
O p t

N LSK A M T l L l R h f T p l t  
t f th U t e t th l t t

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w th N t O d th P O p e a t e D t  
m t f k l l t

B l d d e U r e t h r n d P e n s

B M P H C J d F o L S G S G a d l  
E m p t y g f th O D t d d B l d d

B O N I K O F M N Th R p d t y f S t e F r m a  
t in th B l a d d

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EDITOR'S COMMENT

THE very practical and important subject of surgery of the biliary tract is again represented by a number of helpful and interesting abstracts in the current number of the ABSTRACTS. Julian Comprehensive discussion on the condition of the common duct after cholecystectomy (p. 37), lesser esophageal attention. A discussion on the treatment of fistulas in the common duct (p. 41). Walch at the 4th German Surgical Congress (p. 60) gives a summary of the opinion of a number of the leading German surgeons on this subject. A condensed paper by H. Tz (p. 36) presented at the symposium cites the results with reference to recurrence and mortality in 1200 cases operated upon for gall stones. The mortality rate—3.12 per cent—is considerably higher than that given by most writers. Aren Comprehensive discussion of the X-ray findings in gall bladder disease (p. 34)—another interesting contribution to the subject of gall bladder surgery.

A number of papers in the surgery of the stomach and intestines in the month's number of the *ANNALES* are worthy of special attention. Gibson's study (sixty) i. e. facutepertition of the stomach and duodenum (p. 23) represents an unusual opportunity and experience in the treatment of this critical condition. Beer's review of 146 cases of gastric and duodenal ulcer (p. 4) gives an interesting picture of the methods in use and the results obtained at the Koenigsberg clinic.

Kantor's recommendation of the use of neutral antacids in gastric therapy (p. 23) Litts' discussion of the symptoms in fifty cases of cancer of the stomach demonstrated its operation (p. 26) and Gosset's description of a case of cancer of the small intestine treated by primary ileosigmoid anastomosis and deep radiotherapy, and by subsequent resection (p. 28) touch on widely

divergent but none the less interesting phases of gastro-intestinal surgery.

A discussion on the treatment of acute salpingitis led by Burne at a recent meeting of the British Medical Association (p. 41) indicates a definite tendency toward active interference rather than watchful expectancy in the treatment of a focal inflammation. Conservation of ovarian function is put forward as an important argument in favor of early interference. A preliminary report by Allen and Dicks (p. 39) of the discovery of an active ovarian hormone derived from the liquor folliculi of the ovary and incidentally the negative result obtained by the use of commercial ovarian and corpus luteum extracts will be carefully noted by gynecological surgeons. The report by Sisson and Degrais (p. 39) of a patient with inoperable epithelioma of the cervix who remained well ten years after curettage and radiation is also worthy of note.

In the field of obstetrics Weymeersch and Ollrichs (1, 42) review the experience of a considerable number of German, Italian, and French obstetricians in the management of pregnancy in the tuberculous patient and discuss at length their position in favor of medical treatment as opposed to therapeutic abortion.

A number of other papers on rather widely separated subjects in this month's issue of the Abstract are worthy of special attention. A careful review by the French surgeon Henri Branch, Lucie Viret and Wertheimer of the pathology of intrapinal tumors (p. 11) a report by Nikolai of Tomsk, Siberia on the successful result in three cases of implantation of the ureters into the intestine (p. 48) the recommendation of Nagy of Hungary in favor of treatment of hemorrhagic diseases by radiation of the spleen (p. 58) and the careful study of Eck and Farley of hila lephos on the effect of the X ray on lymphatic tissue (p. 55) urge the constant progress in surgical science that is being made in this selected center.

Mayo in the early thirties, I am well  
d. Lancel 9. I go to the A. str. cr. Dec.  
I b. I. ed. h. M. l. i. in. 57. ses  
pe. I. h. mv. y. ill. p. d. h. ery. oct. m.



# INTERNATIONAL ABSTRACT OF SURGERY

JANUARY 1924

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Kallenbach A. Experiences with Osteomyelitis of the Skull (L (b ng n eb S h edelo te myelit ) B t kl Ch 923 c 7 725

Osteomyelitis of the cranial bones may be the result of an injury causing an area of diminished resistance to bacteria already present in the body. Other causes are inguinal furuncles, phlegmons and infectious diseases such as typhoid fever.

Up to the present time only twenty-two cases of osteomyelitis of the vault of the cranium have been reported in the literature. The frontal and temporal bone are the parts most often involved. The main danger of this condition is involvement of the meninges and the brain. The disease focus should be removed as soon as possible with a chisel and bone forceps.

HORMEIER (Z)

Vionté L. Bilateral Suppurative Parotitis in a Newborn Infant (P tid t s d bl supur d n un eafnns d ) Kev mld d L r g 1923 x 20

Volonté's case was that of a child 1 month old which was born at term. When the patient was first examined the face was generally edematous over the body and pus was found in the right ear. Later bilateral parotitis developed. Culture of the pus showed staphylococci.

Because of the patient's poor general condition the child was and the fever the author believed the parotitis was due to hematogenous infection of the gland. Following triple drainage established simultaneously through the ear through Stenon's duct and through surgical incisions in the gland the patient recovered.

W. A. BRENNAN

Vance A. The Treatment of Parotid Fistulae by Incision of the Gland (Betag u Be hlu g d P t t t l l h n t r u g d Bru e ) Cl j l d 1913 81

Eight years before he consulted the author the patient, a girl 21 years old, had suffered with noma

following an acute exanthematous infection. A resulting fistula persisted for a long time. When it finally closed the right parotid region became swollen and painful. The pain ceased suddenly with the appearance of a discharge from the ear which gradually assumed a cloudy, serous character and resisted every form of treatment. The right side of the face showed irregular, deeply retracted scars and the excretory duct of the parotid gland could not be found. In the external auditory canal was a small polyp covering a fistulous opening from which secretion drained especially during pressure on the parotid gland and chewing. The diagnosis was alveary fistula.

Operation consisted of resection of the parotid branch of the auriculotemporal nerve by the Leriche method. Following this procedure the secretion from the fistula ceased entirely in one week. Later the scars in the cheek were extirpated and the region was covered with an autoplasmic flap from the neck.

WOLFGEMUTH (Z)

Laewen. The Treatment of Progressive Furunculosis of the Face (Unt rschu g n zur Bel andlu g sorts h etend fur nkuloser I roc e m ( s cht ) 47 l r m l d d t l h Ge lisch f Ch 1923

In the last three years the author lost three cases of malignant furuncle of the upper lip in spite of very extensive incision. In one case ligation of the jugular vein was done in addition. Therefore a new method of treating the malignant type of furuncle of the lip was adopted. After the incision was made in the usual way the infected region was tightly infiltrated with the patient's blood. This treatment was given in five cases of furuncle of the upper lip showing a tendency to progress and associated with edema of the soft parts, especially the eyelids but which could not be regarded as malignant because the general serious aspects of high fever, chill and vomiting of the malignant type were absent. In every instance the infection was arrested by the blood defense. The infiltrated blood remained in





## SURGERY OF THE HEAD AND NECK

3

### EYE

Van der Hoeve J The Relations Between the Eye and Ear 1 *Oit Rh 1 & L 15* 1923 xxx 571

Van der Hoeve call attention to some of the less well known conditions of the eye and ear. The syndrome of blue sclerotics consists of blue sclerae, brittle bones fracturing easily without great trauma and deafness. There is a definite relationship between degeneration of the retina and congenital deafness. In congenitally deaf and dumb animals there may be pigment degeneration not unlike that of retinitis pigmentosa or choroiditis.

A case seen by the author suggests that there is some relationship between the tumor masses of Recklinghausen's disease and tuberose sclerosis. Van der Hoeve knows of but one eye disease which causes trouble in the ear; this is sympathetic ophthalmia, probably due to the anaphylactic reaction of the uveal pigment sensitizing the labyrinth pigment. Ear conditions which cause eye disease are thrombosis of the cavernous sinus, paralysis of the abducens nerve in otitis media and fracture.

In conclusion Van der Hoeve discusses the relationship of the eye and vestibular organ.

MICHAEL W. SCOTT, M.D.

Bell G. H. Further Observations on a New Method of Preventing Postoperative Intraocular Infections. A Report of 1250 Successful Cases. *4 Jk Ophth 9 3 1* 436

On the basis of twenty years experience and 1250 cases without a single primary infection or a case of panophthalmitis, Bell recommends a preliminary iridectomy in every case of cataract. His technique is as follows:

1. Focal infections such as oral sepsis, diseased tonsils and toxæmias of the intestinal tract origin are overcome two or three months preceding the operation. Then if the eye appears clinically clean the operation is performed regardless of the bacteriological findings.

2. Twenty-four hours before the operation a dose of castor oil is given to cleanse the intestinal tract.

3. Two hours before the operation a smear of the conjunctival sacs taken and two drops of a 1 per cent solution of silver nitrate are instilled into each eye. On the operating table the brow, eyelids and adjacent skin are washed with castile soap and the eyes washed out with normal salt solution.

4. During the operation sterile rubber gloves are worn by the surgeon, assistants and a conjunctival flap is formed.

5. After the operation two drops of a 3 per cent solution of atropine and a 25 per cent solution of argyrol is used and both eyes are bandaged for forty-eight hours. Thereafter the eye is dressed and argyrol and atropine are instilled every two days.

6. In doubtful cases silver nitrate is instilled in the eyes five hours and two hours before the operation.

MANFORD R. WALTZ, M.D.

McLean W. My Experiences in Working with Dr Barraquer in Barcelona. *Arch Ophth 1923 11* 460

After describing Barraquer's technique the author states that the phacocentesis method is less apt to be followed by complications than the Smith Indian capsulotomy methods of extraction and that while it requires great dexterity it is no more difficult than the expression method.

According to Gallemmaerts of Brussels the Barraquer extraction does away with the pressure on the vitreous body which is so severe in the Smith operation. The results are a black pupil, excellent vision and above all absence of irritation and secondary cataract.

Barraquer examines each case carefully before operation.

THOMAS D. ALLEN, M.D.

### EAR

Lyons H. R. Otitis Media Complicating Operations on the Gasserian Ganglion. *1 N Otol Rhinol & Laryng 19 3 1* 457

Otitis media complicating operations on the gasserian ganglion was first observed in the Mayo Clinic about three years ago. This observation was made following section of the sensory root of the trigeminal nerve and also following the injection of alcohol into this root. The symptoms are: (1) a sense of fullness in the ear on the side on which the injection was given or the operation performed; (2) deafness; and (3) otalgia. The otalgia is not an important complaint but is frequently present. Examination of the affected ear discloses a fullness in the inferior quadrants of the tympanic membrane with more or less obliteration of the common landmarks. There is usually a fluid level and above this a bubbling sound is heard on inflation of the eustachian tube. The tympanic membrane is pale rather than intensely red as in cases of suppurative otitis media. Deafness is determined with tuning forks as of the conduction type and mild. The posterior superior wall of the external canal does not droop.

Minute detail is given concerning the nervous anatomy of the middle ear and its association with tracts from the sensory root of the gasserian ganglion. Such connections are very abundant.

Three cases of secretory otitis media following section of the sensory root of the gasserian ganglion for trifacial neuralgia are reported. In each case the tympanic membranes were slightly full in the inferior quadrants and pale, a definite fluid level was present and a bubbling sound was noted on eustachian tube inflation. All of the patients complained of slight deafness. These symptoms always occur in the ear on the side on which the operation was performed. Otalgia was not a prominent symptom in any case although in one there was moderate pain.

In two of the cases paracentesis was not necessary and the patient recovered rapidly. In the third case paracentesis was done on account of the amount of



fluid present but the opening rapidly healed. In no case did permanent deafness result. In a fourth case the condition occurred after the patient had been dismissed from the Clinic and the observation was verified through the patient's home physician. In this instance there was spontaneous rupture of the tympanic membrane with slight secondary infection in the middle ear. In addition a corneal ulcer developed in the eye on the side in which the operation was performed.

Five cases reported in detail because the ear condition developed after the patient had returned home; the patient was under observation for only a short time. In one of the cases there was a cornal ulcer in the eye on the side on which the ear condition developed. I frequently cornal ulcer following a gasserian ganglion operation is thought to be partially or wholly the result of trauma to the eye at the time of operation. However, as trauma is eliminated from this condition possibly the cause is of the otitis media and the corneal ulcer are the same namely trophic changes due to disturbance resulting from lesion of the sensory root.

The author's conclusions are summarized briefly as follows:

1. Scar tissue in the middle ear following operation on the gasserian ganglion is an entity. It is due probably to the physical trauma in the mucous membrane of the middle ear.

2. The nerve endings between the gasserian ganglion and the mucous membrane of the middle ear are abundant.

3. The ear and eye complication always occur on the side in which the operation is performed.

4. Trauma is implicated as an etiologic factor in the ear eye complication. This further strengthens the argument that the corneal complications are entirely traumatic in origin.

5. The process may be similar to that occurring in herpes zoster in the eye. H. R. Liao, M.D.

# NOSE

Petridi, A. A. Case of Rhinophyma (L. J. 93, 5)

The patient was a man 52 years old. Six years before the result of the author's tumor began to develop on the end of his nose enlarged steadily and became inflamed and suppurated. The examination of the local growth by blood Wassermann test, all negative.

The tumor was composed of two lobules. The large medial one had the lobule and on each side of the base of the lobule was a small lobule. The total horizontal measurement was 6 cm. In contour the growth was soft, spongy and velvety. Its surface showed numerous milium cysts. Sebaceous glands. The excised butyric-like, elastic material to push from the openings. The internal bulbous growth contained sebaceous secretion. The tumor extended to the nasal labial fold

but not onto the mucous lining of the nares. The clinical diagnosis was rhinophyma.

Operation was done by Ollier's method as modified by Morestin. Each lobe was removed separately a portion of the deeper bed of the tumor being left in order not to injure the nasal supporting structure. The tissues bled very freely. The wound cicatrized by granulation in twenty-two days without complication. Skin grafting was unnecessary. Two subsequent plastic operations were done to correct small irregularities on the surface and to remove a cuneiform wedge of skin between the layers of the greatly thickened nasal septum to form a normal nasal septum. After each operation the wound cicatrized readily and after the last operation epidermization was complete in about one and one-half months. Six months after the patient was discharged the result was perfect from the aesthetic point of view.

On pathologic examination the tumor was found to be white firm and homogeneous and to enclose several small cavities containing creamy pus. It consisted of white fibrous tissue rich in nuclei, formed of cells and sebaceous glands which were greatly dilated and hypertrophied and surrounded by a zone infiltrated by lymphocytes. A few giant cells surrounded by epithelioid cells without calcification were found in the lymphatic centers. The anatomical diagnosis was rhinophyma.

WALTER C. BURKET, M.D.

W. Rims G. and Ch. Umets G. Radiography of the Sinuses of the Face (L. J. 94, 12, 385)

The authors describe the different X-ray procedures used for the study of the sinuses. The experience showed to be the best and discuss the interpretation of the roentgenograms and the physiology of the sinuses. It is determined from roentgenograms of normal and pathological subjects and specimens injected with opaque material.

The different views used are as follows: 1. The antero-posterior view with the forehead and nose on the plate and the normal ray in the sagittal plane of the head perpendicular to the plate at the level of the ethmoid. The occiput is on the plate only when it is impossible to make the patient (brain abscess or extreme dyspnea) or the X-ray apparatus. The pharynx and the thyroid glands are shown best when the film is placed in the glabella normally on the plate. The maxillary sinus shown with the head flexed and the normal ray also given in the glabella and the audit vocal or with the head extended and the tube displaced 12 cm. lower than the external occipital protuberance. To outline the frontal sinus the tube is displaced forward 1 cm. above the external occipital protuberance at an inclination of 10 degrees to the horizontal in the glabella. The occipital foramen is projected in the symmetrical of the right and left sides.



## SURGERY OF THE HEAD AND NECK

5

2 The profile or lateral view This is obtained with the sagittal plane of the head parallel with the plate the normal ray being in the middle of a line from the external auditory canal to the outer angle of the eye for delineation of the sphenoid sinus and slightly forward to show the ethmoid and frontal sinuses

3 Oblique views following an axis from the parietal fossa of one side to the orbit of the other were taken symmetrically right and left the patient's head resting on the orbital arch the nose and the malar bone These do not offer notable advantages over face and profile views

4 Intrabuccal films for delineation of the ethmoid and sphenoid sinuses The chin is on the table and the tube is placed above the top of head This method is unpleasant to the patient makes the use of reinforcement screens difficult and gives only fragmentary views of the sinuses

5 Stereographs of the face and profile views These show the general configuration and depth of the sinuses and the exact location of foreign bodies They are of less value for the diagnosis of sinusitis

6 The vertical view of Hirtz or a roentgenogram of the base of the skull either in the anterior view—vertex chin plate—or the posterior view—chin vertex plate The head is in maximum extension in order to avoid projection of the cervical vertebrae For the anterior view the patient is in ventral position with the chin extended on the cassette and cushion The normal ray is parallel with the vertex and the external auditory canal A clear view of the frontal sinus is obtained with the head deflected so that the normal ray falls 1 or 2 cm behind the root of the nose In the posterior view the patient is on his back with his shoulders lifted by cushions to permit extension of the head and the normal ray falls on the base of the chin following a plane passing through the two mandibular angles and parallel with the external auditory canal and the vertex

The authors describe in minute detail with illustration the roentgenograms of the various sinuses in each view

An antero-posterior face plate does not differentiate a lesion of the ethmoid sinus from a lesion of the sphenoid sinus Localization requires a face and lateral film A profile view does not differentiate the right and left maxillary sinuses or the right and left ethmoid cells In the authors opinion the vertical view of Hirtz will gradually supplant the profile view When the number of views must be limited for economy the frontal and vertical views will usually be sufficient for diagnosis The vertical view reveals an orbital prolongation of the frontal sinus

The X-ray shows the exact topography form and dimensions of the sinuses and will reveal also any anomalies and pathologic lesions It has demonstrated that poly-sinusitis is the rule and monosinusitis the exception that ethmoid sphenoidal reactions frequently accompany frontal and maxillary

sinusitis and that ethmoiditis is usually secondary to frontal or maxillary sinusitis Roentgenography is of the greatest value for the exploration of the posterior sinuses in which other procedures are limited These sinuses should be investigated in all cases of retrobulbar neuritis ocular palsy neuritis of the ophthalmic branch of the trigeminal nerve and persistent cephalitis

After the apparent healing of a sinusitis the primary shadows persist for a long time and occasionally are permanent

In all of the authors cases in which the local symptoms suggested sinusitis the roentgen ray revealed the presence of this condition and operation confirmed the roentgen diagnosis

WALTER C BURKET M D

Arbuckle M F Systemic Manifestations of Suppurative Disease in the Paranasal Sinuses *J Am M Ass* 1923 17: 741

Arbuckle reports his observations in nine cases in which certain constitutional disorders were caused apparently by suppurative disease in the paranasal sinuses He concludes that the sinuses become developed and may become diseased much earlier than is generally assumed also that the relation of sinus disease to constitutional disease is of far greater importance and more common than is generally believed

OTTO M ROTT M D

## MOUTH

Hirschfeld I Vincent's Infection of the Mouth *N Y J M J G M d R c* 923 11: 150

The outstanding feature of this article is the discussion of the differential diagnosis brief descriptions being given of the clinical symptoms of pyorrhea mercurial stomatitis aphthous stomatitis tuberculous and syphilitic lesions of the mouth and pemphigus as well as the points of differentiation between these diseases and Vincent's infection

The mouth lesions in Vincent's infection are ulceration and sloughing of the marginal gingivae with the formation of a grayish membrane which is easily wiped off Removal of the membrane leaves a raw bleeding surface Fetid breath malaise increased salivation and mental depression are associated with the disease

The bacterial findings (Vincent's bacilli and spirilla) are not sufficient evidence for a diagnosis as the same organisms were found in the mouths of fifty one of seventy five patients selected at random

Great care should be taken to cure the disease entirely as a subacute or chronic Vincent's infection may persist the organisms being protected about malposed teeth and under loose gum margins

In the treatment the author applies neosalvarsan locally and prescribes a sodium perborate mouth wash

Several case histories are reported

CHARLES W F EEMAN D D S

## THROAT

Sonn n chein R Alc h I Inject on as a P ssible  
Adjunct to Tonsil ctomy under Local Anes-  
th ia A Otol Rh l & L y s 19 3  
x u 827

In the author's opinion local anæsth a is prefer-  
able to general anæsthesis for tonsillectomy as it  
causes less nausea vomiting and immediate post-  
operative discomfort. The addition of alcohol to the  
anæsthetic fluid decreases the toxicity syncope dis-  
comfort and postoperative bleeding.

Sonnenchein has used various concentrations of  
alcohol but found that from 33 to 50 per cent is  
best as it has a goilest effect with a marked re-  
action. The solution is prepared by mixing about  
2 drops or per cent solution of apothecary  
with 100 per cent alcohol and adding the re-  
sultant preparation to adrenalin chloride solution.  
In the cases of apprehensive patients the mucosa  
covered by the posterior third of the hard palate and  
the pharynx are anesthetized with a 1 per cent  
small amount of 1 per cent solution of cocaine.

About five drops of the solution are instilled into  
the nostrils and the patient is placed in the supine  
position with the head tilted back. The first upper  
molar tooth and just anterior to the first upper  
incisor are palpated. From this point the needle is  
inserted into the soft tissue extending to the level  
of the junction of the upper and middle third  
of the tongue and six or seven drops are injected on a  
level with the base of the tongue.

The disadvantages of this method is that the  
pain immediately following the injection is more  
acute following the use of the alcohol solution than  
when only apothecary solution is used. The solution is  
always of doubtful impairment of the motility of the soft  
palate due to blocking of the motor nerve.

JAMES C. BARNES, M.D.

Harkin G F and Ruck J E Postoperative  
Comfort in Tonsillectomy J I S t M Soc  
9 3 33

Harkin and Ruck report upon the replies  
received to a question concerning the method  
used to overcome the discomfort following tonsil-  
lectomy. Their conclusion is:

1. Pain is the chief problem after this operation.  
2. There is a marked diversity of opinion in regard  
to its relief.

3. It is generally agreed that the postoperative  
pain will be considerably less if care is taken not to  
injure the pharynx during the operation.

4. Some surgeons give 1/4 grain of morphine  
150 grains of atropine half an hour before the opera-  
tion. Within the first two hours after the patient  
returns from the operating room the morphine is  
repeated. Later it is again repeated at doses then  
being 1/2 or 1 grain. An ice collar is worn most of the  
first twenty-four hours.

5. Before and after meals a glass of  
24 grains of aspirin in 4 ounces of water given and the  
patient is urged to swallow some of the solution.

6. The emulsion method is used to pull  
up on the angles of the jaws during eating and  
drinking and the patient is urged to take a con-  
siderable quantity of fluid.

7. Orthoform anesthesia and various other pow-  
ders have not been found satisfactory.

8. All lineages and irrigations preferably hot  
are used three times daily.

The authors report that swabbing of the fossa with  
castor oil or liquid petrolatum and gargling with  
aspirin solution have a soothing effect.

Otto M. Rorty, M.D.

Davis E D D Cysts of the Larynx J La Col &  
Otol 19 3 473

Davis reports three very similar cases of cysts of  
the larynx one from his own practice and two from  
the practice of Trotter. The cysts were pale and  
smooth filled with the office of the larynx and caused  
dyspnea and stridor. They arose apparently above the  
thyroid and below the arytenoid glottidean  
folds and ventricles or epiglottis. They completely  
disappeared when punctured but recurred in a few  
days.

The authors' patient died of asphyxia. In the  
two other cases the cysts were removed at operation.  
In every case the cyst was extrinsic to the larynx  
but communicated with it through the thyrohyoid  
membrane. There was no connection with the ven-  
tricle of the larynx. The thin laryngeal mucous  
membrane covered the internal projection of the  
cyst and gave it an appearance suggesting a sessile  
growth.

Lamination of the specimens showed them to be  
simple mucous or retention cysts. There was nothing  
to indicate that they were dermoids or of con-  
genital origin.

MAURICE R. WALTZ, M.D.

Bigg H H Tuberculosis of the Larynx S t  
M J 9 3 175

Laryngeal tuberculosis is a frequent complication  
of pulmonary tuberculosis. It creates the mortal-  
ity and also pain to another serious disease.  
Briggs calls attention to the fact that the disease is a  
natural treatment for each stage of laryngeal tuber-  
culosis is a little different but possible at any stage.  
There is a vast literature for the treatment of tuber-  
culosis the presence of a skilled laryngologist is of  
great importance.

Otto M. Rorty, M.D.

## NECK

Gobbi L Congenital Cyst of the Neck (Cystic  
Hemangioma) J I S t M Soc 19 3 37

The case reported by Gobbi was that of a man  
aged 22 years. The preoperative diagnosis was  
congenital cyst of the median thyrohyoid region prob-  
ably of thyroglossal origin. On histologic examina-  
tion the cyst was found to be a dermoid containing  
lymphatic tissue in its walls.



In the literature Gobbi has been able to find only two other cases of dermo lymphogenous cysts of the neck, one in the left lateral region and the other in the suprathyoid region.

W. A. BRENNAN

**Orator V. New Points of View in the Evaluation of the Pharmacodynamic Test of Function. Also a Contribution on the Goetsch Adrenalin Test.** (Neue Gesichtspunkte in der Beurteilung der pharmakodynamischen Funktionsprüfung Zugleich ein Beitrag zur Frage der Epinephrinprobe.) *Mitt. d. Chir. u. Gyn. d. Med. Kl.* 93: 1-420.

Among sixty pharmacodynamically examined cases of goiter there were only 16 per cent with a vagotonic or sympathicotonic predisposition. Most of them reacted to adrenalin and pilocarpin in the same way. Nearly all of the cases of diffuse goiter reacted strongly, whereas those of nodular goiter reacted weakly but showed a distinct local reaction to adrenalin. After operations the cases of diffuse goiter usually showed a decrease and those of nodular goiter showed an increase in the reaction.

TOBLER (7)

**Boothby W. M. and Sanford I. The Total and the Nitrogenous Metabolism in Exophthalmic Goiter.** *J. A. M. A.* 923: 178-185.

The evidence here presented indicates that there is no measurable increase in the endogenous protein metabolism in exophthalmic goiter. Therefore this cannot be the cause of the increase in the basal metabolism. The cell consumes at an accelerated rate whatever type of food is brought them, but in none of the authors' experiments was there evidence to indicate that any of the three food substances—fats, carbohydrates or proteins—is burned in a qualitatively abnormal manner.

As in the normal subject, the body's own stores of the essential substances are drawn upon only to meet deficiencies in food intake. However, unless the daily caloric requirement is supplied by a large food intake, a loss of weight and general weakening with decreased resistance result more rapidly and in more intense form than in undernourished normal subjects.

It is the authors' experience that patients with exophthalmic goiter who are losing weight are greater operative risks than those who are well nourished or gaining weight. They therefore recommend that measures directed toward preventing and if possible restoring loss of weight be instituted before operative procedures are under taken.

W. M. BOOTHBY, M.D.

**Heiman H. Exophthalmic Goiter in Childhood with Some Unusual Manifestations.** *Am. J. Dis. Child.* 93: 17-26.

The author reports three cases of exophthalmic goiter in children aged 4, 5 and 7 years respectively. During the first year of life the condition is very rare. Females are affected more often than males. Heiman's three patients were girls. The range of

the pulse rate was from 100 to 110 in the first case, from 120 to 130 in the second, and from 160 to 180 in the third. Exophthalmos is usually less marked in children than in adults, but in the three cases reported it bore a direct relationship to the severity of the condition. Enlargement of the thyroid and increase in the basal metabolic rate and hyperhidrosis were noted in every case. In two there was a fine tremor of the hands. Blood counts did not show the lymphocytosis often found in adults.

The treatment suggested is strict physical and physical rest for six to ten weeks, and if no improvement results, the use of the roentgen ray. If the roentgen ray also fails, thyroidectomy should be performed.

ARTHUR L. SHREFFLER, M.D.

**Walton A. J. The Surgery of the Thyroid Gland. I. Adenomata—Colloid Goiter. II. Exophthalmic Goiter.** *La. et.* 1923: ccv-53, 267.

In a person of cancer age an adenoma is potentially malignant though it may be still contained entirely within its capsule. Walton gives the indications for surgical interference as follows:

1. Failure of medical measures to give relief.
2. A steady increase in size with resulting deformity, especially if the tumor has been present for many years, the patient is over 35 years of age, and there is the slightest evidence of toxic symptoms. These adenomata should not be operated upon during pregnancy unless there is very severe dyspnea from pressure.

3. The presence of dyspnea. This is the chief indication for operative interference. The cause is probably hæmorrhage into the tumor or a rapidly growing retrosternal goiter.

4. Symptoms of pressure on the recurrent laryngeal nerve, the blood vessels, or the œsophagus.

5. Pain. This is sometimes an indication of carcinomatous change.

6. Hyperthyroidism. Enucleation of the adenoma is indicated when it is small and resection when it is large.

In the colloid type of goiter the hereditary factor is more marked than in adenoma. About 80 per cent of such goiters occur in females and their highest incidence is between the ages of 15 and 20 years. The cause of colloid goiter is generally believed to be a deficiency in iodine in the water and food and in addition, inability of the thyroid to avail itself of the iodine present. Infection may increase the demands of the thyroid for iodine or prevent its proper assimilation. The symptoms of colloid goiter are usually those of pressure. As a rule the basal metabolic rate is normal or a little below normal. The treatment usually advised is the administration of iodine or thyroxin.

The etiological factor of exophthalmic goiter is thought to be prolonged mental stress, shock or worry. This condition occurs much more frequently in women than in men. The three views supported today are that the symptoms are due to hyperthyroidism, dysthyroidism, or a pluriglandular dis-

tu bance. Surgical treatment is based on the theory of hyperthyroidism. The symptoms of the disease are manifold. As a rule the thyroid is enlarged and exophthalmos is present. Exophthalmos is one of the last symptoms to disappear when the patient is cured. Tachycardia is always present and often the pulse is very irregular. The skin and its appendages show changes such as sweating and pigmentation. Nervous symptoms are always present to some degree especially tremor of the fingers and tongue. Gastro-intestinal symptoms such as diarrhoea, vomiting and marked loss in weight are common.

The author gives patients with exophthalmic goiter medical care for the first six months of the disease studying the pulse, the temperature and the metabolism rate. When the symptoms are minimal he operates. His experience with X-ray treatment has been very unsatisfactory. To lessen the toxæmia before operation large saline injections may be administered. Ether is the anæsthetic of choice. On the day of operation forty-five minutes before the patient is sent to the operating room 3 oz. each of ether and olive oil are injected per rectum. This injection decreases the amount of ether that must be given through the open mask to complete the operation. The choice of operation depends upon the patient's condition. A preliminary ligation is done in cases with severe toxæmia but as a rule primary resection is necessary.

ARTHUR L. SUREFFLER, M.D.

Just E. The Postoperative Temperature Following Strumectomy (Dopo l'operazione di Tiroidectomia) *Atti d. Congr. g. d. M. d. C.* 1923 38

The colloidal struma, the expression of inhibited drainage, contains an abundance of valuable thy-

roid secretion. It indicates an organism with active internal secretory pressures. Following partial resection the circulation of the gland is increased and the organism responds with a change in its total metabolism. The trauma of the operation causes a breaking down of proteins which excites the terminals of the temperature centers and the resulting fever causes a more rapid decomposition of the remaining colloid which restores the internal secretory equilibrium. Fever of unknown cause may perhaps be explained in this way. NAEGLI (Z)

Fasiani G. M. Malignant Adenoma of the Parathyroid (Adenoma maligno della paratiroid) *Atti d. Congr. g. d. M. d. C.* 1923 42

To the few recorded cases of malignant tumors of the parathyroids Fasiani adds the case of a woman of 63 years who presented an old goiter on the right side and a tumefaction the size of an adult's fist on the left side of the neck. The latter had recently grown very rapidly, suggesting malignancy. The patient died during the operation.

The tumor in the left lobe of the thyroid was found to be invaded by neoplastic tissue which had penetrated into the cavities of the follicles developed in nodes of considerable size and spread to the surrounding tissues. The tissue of the neoplasm showed the histologic structure of parathyroid tissue. Fasiani regarded it as a malignant adenoma of the parathyroid because in spite of the evidences of proliferation, invasion and relative immaturity of certain elements it had preserved in its structure the morphological type of the glandular tissue from which it took its origin. He discusses the literature of malignant parathyroid tumors and includes in his article reproductions of histologic sections from the case he reports. W. A. BENNETT



## SURGERY OF THE NERVOUS SYSTEM

### BRAIN AND ITS COVERINGS CRANIAL NERVES

Bagley C. Jr. Extensive Hemorrhagic Intravascular from the Venous System of Galen with Clinical Syndrome. A Report of Three Fatal Cases with Two Necropsies. *Arch Surg* 1923 77: 237

Bagley describes the cases of traumatic brain lesion having the same clinical course. An early sharp rise in the temperature amounting to nearly 3 degrees a few minutes after the accident in Case 2 and to 5.5 degrees ten hours after the accident in Case 1 marked the beginning of a hyperpyrexia which continued throughout the illness and gradually increased from 106 to 107 degrees Fahrenheit at the time of death. The respiratory and pulse rates were greatly elevated. In Case 2 the pulse rate was 120 and the respirations 56 a few hours after the accident. Before the end of twenty-four hours after the patient came under the author's observation the pulse rate was 160 and subsequently ranged between 125 and 140. The respiratory rate during the entire illness ranged between 26 and 62 per minute.

In all cases muscle power was affected to a greater or less degree and the deep reflexes were increased. The disturbances were chiefly of the pyramidal type. In Case 1 signs of palsy on the side predominated. In all of the cases the pupillary reactions were disturbed and there was flooding in the cerebral spinal fluid.

When a small opening was made in the temporal region in Case 2 the intracranial tension was found to be less than normal; in fact the brain seemed to be almost shriveled and was very easily compressed by the syringe.

In Case 2 the ventricle was aspirated through a burr opening over the occipital pole. A space of at least 1 cm. between the dura and the cortex of the brain in the left hemisphere indicated that the intracranial pressure was very small.

The pathologic findings in the two cases which serve to make it very justifiable the conclusion that the syndrome was a definite morbid entity. As the morbid changes were definitely limited to the structures anatomically related to the venous system of Galen the conclusion is drawn that such a unit can be a circumscribed focus in the brain. Some of the signs such as the disturbance of the muscular activities, the weakness and the increase in the deep reflexes are fully accounted for by the pathologic findings while others such as the hyperpyrexia, unconsciousness and low intracranial pressure may perhaps be attributed better to lesions of the part of the brain than to those of any other.

WILLIAM H. KANE, M.D.

Marchand L. and Adam F. Fatal Status Epilepticus in a Woman with a Colter Who Was Subjected to Oophorectomy. Hypophyseal Hemorrhage. *Stat d mal Gynecol et obstet* 1923 35: 25-26.

A woman aged 65 developed hypochondriacal symptoms, persistent uterine hemorrhage and hypertrophy of the thyroid gland shortly after the menopause. In an attempt to relieve the hemorrhage and mental symptoms the uterus and ovaries were removed. Three months later the patient began to have epileptiform seizures and eventually died in status epilepticus.

Autopsy revealed arteriosclerotic changes in the cerebrum, extravasation of blood in the pia mater and changes in the cells of the cerebral cortex. The thyroid gland showed subacute thyroiditis and the hypophysis a recent hemorrhage in the anterior lobe.

LOUIS L. DAVIS, M.D.

Scott S. Left Temporoparietal Abscess. Amnesia. Names of Objects. Cerebellar Abscess. Sudden Coma and Apnea. Recovery after Operation During Artificial Respiration. Cerebellar Abscess Five Weeks after the Onset of Acute Otitis Media in the Right Side. *J. of Roy Soc Med* 1923 16: 33-34.

CASE 1. The patient was a 10-year-old girl with deafness of the left ear for 10 years duration. An otorrhea which had been present previously ceased for eight months after the removal of the tonsils and adenoids but then recurred with pain in the left ear and convulsions involving the right side of the body. On the patient's admission to the hospital her temperature was 101.6 degrees Fahrenheit and her pulse 96. The left external auditory meatus contained pus and debris. The left mastoid was slightly tender. Knee jerks were unobtainable, the superficial abdominal reflexes on the right side were weak and there was amnesia for the names of objects. Headache was absent.

A mastoid operation revealed pus and cholesteatoma in the antrum, an extradural abscess in the middle cranial fossa, adhesions between the dura and pia arachnoid extending to the lateral surface of the temporoparietal lobe and absence of pulsation of the dura. No pus drained from an incision into the cortex.

After the operation the patient's condition did not clear up and she experienced several attacks of vomiting. Three weeks later at a second operation a brain abscess was found just under the adherent dura. This was incised and drained with a rubber tube. Thirteen months later the meatus was stenotic.





Weigeldt W. Air Inflation in the Diagnosis of Brain and Spinal Cord Diseases (Die Bedeutung der Luftinflation fuer Hirn und Rueckenmarks diagnostik) *Frisch d G b d R entg tr Me* 19 3 xxx 63

Weigeldt reports on six five cases in which the Dandy and Bingle methods were used. Direct ventricle puncture by the Dandy method is less disagreeable to the patient than the inflation of air from the lumbar sac but its drawbacks are a greater risk more difficulty in filling the ventricles when the lateral ventricles are narrowed or displaced the necessity for shaving the head and the necessity for a greater number of instrument. Minor symptoms as associated with both methods are a transitory frontal headache sweating nausea and vomiting.

When the patient is in the supine position the horizontal ray shows the anterior cornua of the lateral ventricles and when he is placed in the prone position it demonstrates the posterior cornua. On frontal exposure with slight turning of the head the lateral ventricles can be superimposed and compared as to size and shape. Serial exposures showed that injected air is normally reabsorbed from the subarachnoid space in from three to five hours and from the ventricles in from six to ten hours. In cases of pathologic enlargement larger air quantities often do not disappear in from two to four weeks.

Of importance in localizing a space diminishing process are a relatively small quantity of air in the subarachnoid space on the same side the displacement of the longitudinal brain fissure or the septum pellucidum toward the other side and deformity of the lateral ventricle on the same side.

In the spinal cord total occlusion of the dural sac by tumors as never demonstrated but during the air inflation in cases of such growths the patient always experienced a violent stabbing pain at the site of the pathologic process. *Tobler (Z)*

Denk W. The Danger of Lumbar Cerebrospinal Puncture in Case of Brain Tumors (Ueber die Gefahr der Lumbarpunktion bei Hirntumoren) *M f f s k h 9 3 5 47*

The author reports a third case of death following lumbar cerebrospinal puncture in a man 26 years old. The condition to be diagnosed was characterized by choked disk headache nausea vomiting bilateral paralysis of the external recti ataxia in the left upper extremity and ankle clonus and a positive Babinski sign on the left side. The Wassermann test was negative. A pathological process in the posterior cranial fossa was suspected.

As an attempt to puncture the ventricle for intracranial gravity was unsuccessful 60 c m of spinal fluid were withdrawn by lumbar puncture and the same amount of oxygen was introduced. The fluid was within a normal quantity of 4 c cm. The X-ray showed that the oxygen did not enter the ventricles. Half an hour after the lumbar puncture the patient became apathetic and benumbed and the next morning died in convulsions.

Autopsy revealed a softened area of brain substance (glioma) the size of a child's fist in the left temporal lobe and displacement of the lentiform nucleus and the median plane toward the right.

The author believes that lumbar puncture is dangerous in cases of brain tumors on account of the reduction in the pressure in the lumbar spine which is continued up into the cranial cavity. He attributes his patient's death to this procedure and warns against lumbar encephalography in cases showing signs of increased intracranial pressure. In cases without such increased pressure it should be used with caution. *Vorschlutz (Z)*

Frenkel S. The Roentgen Diagnosis of Tumors of the Auditory Nerve (Die Roentgen diagnose der Vestibulumtumoren) *Wiskow W J 1922 11 27*

Following the suggestion of Henschen the author made X-ray exposures of the skull in a sagittal direction in four cases of tumor of the auditory nerve and compared the normal and diseased sides. In every instance a dilatation of the internal auditory meatus was found. Three of the cases came to autopsy.

Frenkel concludes that in every case in which a tumor of the auditory nerve is suspected by a lateral roentgenogram should be made a these will aid in the diagnosis and in the decision as to the type of operation which is most suitable. *Von Holst (Z)*

## SPINAL CORD AND ITS COVERINGS

Jaeschke W. Late Injuries to the Spinal Cord in Congenital Scoliosis and Their Surgical Treatment (Ueber Spätschaden des Rückenmarkes bei angeborener Skoliose und ihre operative Behandlung) *B h d l R B i k l i C l 1923 cv x 348*

Jaroschky reviews the few reports made to date on spinal cord injuries in scoliosis and discusses two cases of his own in Schloffer's clinic. The latter were cases of congenital scoliosis due to malformation of the fourth dorsal vertebra which at the ages of 17 and 14 years respectively caused spastic paralysis of the legs with grave impairment of sensibility. When the first patient was 18 years old the spinous process and the arches of the second to fifth dorsal vertebrae were removed the dural sac was opened palpated and closed again and the adjoining dorsal nerve roots on the one side were severed. In the 14 year old patient a laminectomy from the first to the sixth dorsal vertebra resulted in increasing paralysis. In a second operation the dural sac was opened and could not be closed again. The symptoms of the cross-section myelitis in the patient who was ill for only a short time disappeared almost totally while in the other patient who had been ill for over a year this became very much less marked.

The true cause of these manifestations of mechanical pressure could not be determined even by inspection during operation. The faster growth of the spinal cord compared with that of the bony structure during puberty is responsible. Compres-



sion of the cord in each tie and stat e scoliosis has not been demon strated. In the d ifferent l iagnosis p u n a b i l i t y and t u r u l o u s s p o n d y l i t i s m u s t b e c o n d e d

Scrimmer (7)

Pe l A Early Surgical Treatment of Acute  
Tuberculous (Tuberculous) Infection of the  
Spinal Cord (Tuberculous) Infection of the  
Spinal Cord

The author states that in the early treatment of tuberculous infection of the spinal cord, attention has been paid to the fact that this disease is very often accompanied by spinal meningitis. The clinical picture of infection of the spinal cord is characterized by the following important role in the diagnosis of the disease. In the early stage of the disease, it is not possible to save the spinal cord by operation in the presence of the meningitis and the spinal cord.

In the literature, a critical study in which the results of the treatment of tuberculous infection of the spinal cord are compared with those of the treatment of the disease in the early stage of the disease. The author states that in the early stage of the disease, it is not possible to save the spinal cord by operation in the presence of the meningitis and the spinal cord. The author states that in the early stage of the disease, it is not possible to save the spinal cord by operation in the presence of the meningitis and the spinal cord.

Be l Brain De l Viret and Wertheimer  
An Anatomical Study of Intracranial  
Tumors (Anatomical Study of Intracranial  
Tumors)

The plan which may involve the spinal cord at some time during the life of the individual is of great importance. The following are the most common types of intracranial tumors.

1. Tumors of the spinal column  
Spinal column tumors (1) spinal (2) cervical (3) thoracic (4) lumbar (5) sacral

2. Tumors of the spinal column (1) spinal (2) cervical (3) thoracic (4) lumbar (5) sacral

The study of the spinal column is divided into three parts: the intracranial, the spinal, and the extracranial. The study of the spinal column is divided into three parts: the intracranial, the spinal, and the extracranial. The study of the spinal column is divided into three parts: the intracranial, the spinal, and the extracranial.

New fibromata in the spinal column and spinal tumors are discussed under the term "polynoma." All such growths arise from a nerve bundle and progress with increasing size and structure. In the case of metastasis, the growths are of the type of the spinal cord.

nerous tissue or its coverings. The involvement within the spinal canal varies with the duration of the disease and the malignancy of the tumor. Polynoma may invade the vertebral canal without causing any apparent neurological symptoms. On the other hand, such a tumor may have the appearance of a true intracranial growth. In invading the vertebral canal, it may pass through three stages: a peripheral stage, a radicular stage, and a spinal stage. The first stage is the most common.

Two cases are cited to illustrate the invasion of the spinal cord. The first is a case of a polynoma of the upper extremity. The second is a case of a polynoma of the lower extremity. The first case is a case of a polynoma of the upper extremity. The second is a case of a polynoma of the lower extremity. The first case is a case of a polynoma of the upper extremity. The second is a case of a polynoma of the lower extremity.

Intracranial vertebral tumors are classified as malignant and benign. The former are fibrosarcoma and osteosarcoma. The latter are fibroma and osteoma. The first group usually develops in the body of the vertebra and causes destruction of bone and soft tissue. The second group usually develops in the body of the vertebra and causes destruction of bone and soft tissue. The first group usually develops in the body of the vertebra and causes destruction of bone and soft tissue. The second group usually develops in the body of the vertebra and causes destruction of bone and soft tissue.

The spinal canal is invaded by the tumor in the following manner: the tumor first invades the body of the vertebra, then the intervertebral disc, and finally the spinal canal. The tumor may also invade the spinal cord directly. The tumor may also invade the spinal cord directly. The tumor may also invade the spinal cord directly.



meninges either by direct metastases or by thickening due to a malignant or infectious process

The complications of intraspinal tumors may be divided into those affecting the meninges the spinal cord and the bone. Diffuse sarcomatosis of the meninges is rare. A circumscribed serous meningitis secondary to an inflammatory lesion may simulate a true spinal cord tumor. Mechanical compression of the spinal cord due to deformities within the vertebral canal such as fractures dislocations and exostoses is common. Meningomyelitis may give rise to serious errors in diagnosis. Varicosities of the veins microscopic hemorrhages into the cord endarteritis obliterans with softening and subdural circoid aneurism are among the vascular lesions which may cause medullary compression. Syringomyelic cavities within the spinal cord substance often accompany sarcoma of the spinal column and have been reported with Paget's disease. Bony complications associated with intraspinal tumors are friability of the bones sponginess and cavity formation.

LOYAL E. DAVIS M.D.

#### PERIPHERAL NERVES

Leno mant G and Sènèque J. Two Cases of Compression of the Brachial Plexus Due to Hypertrophy of the Transverse Processes of the Seventh Cervical Vertebra (Deux cas de compression du plexus brachial par hypertrophie des processus transverses de la 7<sup>e</sup> vertèbre cervicale). *Bull. Soc. de Ch. de Pa.* 923, 1907.

Cases of compression of a nerve or blood vessel by a cervical rib are well known, but compression of the brachial plexus due to simple hypertrophy of the transverse processes of the seventh cervical vertebra in the absence of a cervical rib are less common. The authors have seen seven cases of the latter type and in this article report those of two women aged 23 and 50 years respectively. The first patient showed a reaction of partial degeneration of the interosseous and hypothenar muscles with slight myositis and slight left ophthalmia. Bilateral hypertrophy of the transverse processes of the seventh cervical vertebra was revealed by the X-ray. At operation the cervical nerves stretched and linked over the transverse processes were incised freed and sutured. Recovery followed with complete disappearance of the degeneration.

In the second case the hypertrophy of the transverse processes of the seventh cervical was more marked on the right side and the eighth cervical nerve was strained. Operation in this case also was followed by recovery.

W. A. BRENNAN.

DeMasary E. and Walzer J. A Tumor Probably of Nerve Tissue Origin Developing in the Gastric Wall (Tumeur d'origine nerveuse probable de l'estomac). *Bull. Soc. de Ch. de Pa.* 923, 1907.

The authors report a case characterized by the clinical picture of advanced secondary anemia pain

in the epigastrium hæmatemesis melæna and a regular oval resistant mass slightly tender upon palpation on the right side of the trunk below the umbilicus.

Exploratory operation revealed a tumor of the anterior wall of the stomach without associated glandular enlargement. Upon microscopic examination the growth was found to lie just below the muscularis mucosæ and to infiltrate the submucosa. Its structure resembled very closely that of tumors arising from peripheral nerves which were described by Lhermitte and Leroux as peripheral glomangiomas.

LOYAL E. DAVIS M.D.

Soederbergh G. Investigations of the Innervation of the Abdominal Wall (Untersuchungen ueber die Nerven der Bauchwand). *Ztsch. f. d. ges. u. appl. Med.* 923, 1907.

In the treatment of organic nerve diseases operable tumors of the spinal cord occupy a particularly important place. Most of them lie in the dorsal region and are by no means always of the type that reveal their level through sensory root symptoms. Therefore the motor and reflex symptoms are of more significance than the sensory. It is extremely desirable accordingly that the function of the motor thoracic roots be investigated further. In laminectomies Soederbergh studied the results of faradic stimulation of the dorsal motor roots and compared these findings with the clinical evidences of irritation and the anatomical findings in cases of spinal cord tumors coming to operation or autopsy. His observations are summarized as follows:

The fifth dorsal nerve takes part in the innervation of the first cranial segment of the rectus abdominis. The sixth dorsal nerve innervates the first and second segment of the rectus. The seventh dorsal nerve influences the rectus above the umbilicus and the upper portion of the external oblique. The sixth and seventh dorsal nerves probably govern the upper portion of the transversus. The eighth dorsal nerve innervates the rectus above the umbilicus and the muscles of the flank to a little below the level of the umbilicus. The ninth dorsal nerve is the chief innervator of the transversus at the level of the umbilicus and takes part in the innervation of the middle portions of the muscles of the flanks and the rectus below the umbilicus. The tenth dorsal nerve innervates the middle portion of the internal oblique and also takes part in the innervation of the muscles of the flank below the umbilicus and of the rectus below the umbilicus. According to other investigators particularly Dawindenkoef the eleventh dorsal is the chief innervator of the rectus below the umbilicus. The twelfth dorsal and the first lumbar nerves innervate the rectus below the umbilicus and the lower portions of the muscles of the flanks.

In addition Soederbergh carefully studied the abdominal reflexes in 700 persons. The upper reflexes were never associated with contractions below the level of the tenth rib. In the main the contractions

corresponded to the function of the seventh dorsal nerve and the sixth dorsal nerve as an accessory. Stimulation of current lowest frequency when the ninth dorsal nerve was stimulated. This reflex therefore belongs to the region from the sixth or seventh dorsal nerve to the ninth. In 6% of the 700 cases the middle abdominal reflex was confirmed to the motor tri-m corresponding to the motor roots of the eighth and ninth lumbar nerves. It is stimulated by the tenth lumbar nerve. It is the reflex of the abdominal reflex was usually present. In 97 per cent of the cases the contraction of the rectus abdominis muscle of the umbilical region in the area of the tenth to eleventh lumbar nerve (first lumbar) less often in that of the ninth dorsal nerve. The lower reflex is localized in the region from the ninth or tenth to eleventh dorsal nerve (first lumbar?) according to the situation of the point of stimulation in the twelfth dorsal.

WAF (7)

### SYMPATHETIC NERVES

Papillon V and Gruener H. The Effect of Bilateral Cervical Sympathectomy upon the Respiratory Mechanisms (Ist Einfluss der bilateralen Sympathektomie auf die Respiration).

In this report the authors found that the sympathectomy had the effect of the upper cervical ganglion in the regulation of the respiratory mechanism with a permanent reduction of the number of respiratory movements by half. This phenomenon persisted for eight to ten days and was more pronounced in the tracheobronchial wounds. In the animal experiments was exposed with sympathectomy or the trachea in the lungs in order to determine the effect of traumatic changes in the respiratory frequency.

Following an injection of a barbiturate the rate of the respiratory movements returned to normal. Neurophysiological addition to hyperemia of the brain and gets in the tracheobronchial and the diaphragm. The authors suggest that the congestion may be the cause of the lowering of the respiration through the stimulation of sympathetic fibers leading with the vagus and phrenic nerves to the bronchi and the peritoneum.

Wiedel P. Experimentelle Untersuchungen über die Wirkung der bilateralen Sympathektomie auf die Funktion der Lunge (Ist Einfluss der bilateralen Sympathektomie auf die Funktion der Lunge?).

The authors performed experiments on the course of the nerves of the peripheral blood vessels of the extremities. The method used was plethysmography which shows even minute changes

of the vessels through changes in the volume of the limb. In dogs the hind foot was plethysmographed. Painful irritation of the abdominal skin or the muzzle caused a decrease in volume through contraction of the peripheral vessels. The blood pressure remained constant. When the peripheral sympathectomy was done on the femoral artery neither the volume of the extremity nor the reaction of the vessel showed any change. The equal freezing of the sciatic nerve caused an increase in volume and a pulse and complete or almost complete arrest of the respiratory pain. The latter ceased regularly when after freezing the femoral nerve was severed. The respiration was followed constantly by hyperemia of the hind foot. The results were the same when the test sequence was reversed.

In man the hand was plethysmographed. Nerve conduction was blocked with a 3 or 4 per cent novocaine solution with an arealine. Anesthesia of the radial nerve in the arm above the wrist caused only a slight increase in volume. Following interruption of the conduction in the ulnar or median nerve there was a more distinct increase in the hand volume. The volume pulse grew larger. With reactions to pain in the hand were considerably increased. Interruption of the three nerves at the same time stopped all reaction. In the anesthetic region the skin temperature rose from 35 to 37°C.

From these findings the authors conclude that the peripheral blood vessels of the nerves of the limbs are located in the motor nerves approach the blood vessels segmentally and do not run continuous with the latter to the periphery. Therefore the effect of peripheral sympathectomy cannot be caused by the sciatic nerve resection if the nerves running to the periphery along the blood vessels. The findings of the experiments agree completely with the established teachings of anatomy and physiology.

WIEDERHOF (2)

Bruening F. The Results and Unfavorable Results of Periaxial Sympathectomy and the Application of Tissue Operation to the Treatment of Arteriole Occlusion (Die Ergebnisse der periaxialen Sympathektomie und die Anwendung der Tissue Operation bei der Behandlung der Arteriole Occlusion).

In a series of cases of peripheral disease and claudication which had been treated more than a year previously by peripheral sympathectomy, he had a complete remission in some instances. In the case of leucoderma the trophic disturbances also were present. He relieved them and in the case of claudication the painful attack of a sciatic sprain he never returned. With regard to both conditions it is justifiable to speak of a permanent cure.

When the operation results unfavorably its failure is due chiefly to faulty technique. The advantage must be removed thoroughly. The tissue at all remains in the smooth muscularis with the appearance of mother of pearl. Moreover the

operation must be performed high up on the affected extremity—in the arm where the axillary artery becomes the brachial and in the leg close to the groin—and for an extent of 10 to 12 cm. The results will be unfavorable if the operation is performed in the absence of proper indications. It is indisputably indicated however in trophic disturbances following nerve injuries when the irritation at the site of the injury cannot be removed in any other way in all transitory angio-pastic conditions such as intermittent claudication, vasomotor trophic neuro-angiospasm in the presclerotic stage of arteriosclerosis and in persistent angio-pastic conditions.

The most difficult question to answer is whether it is indicated in case of threatening or beginning gangrene following arteriosclerosis and endarteritis obliterans since the progress of these basic conditions cannot be arrested by operative interference. Because of the hyperemia of the peripheral portions of the extremities following the operation there seems to be a possibility of preventing threatening gangrene and even of effecting rapid healing in early gangrene but it must be borne in mind that immediately after the operation the nutrition of the tissues is still further reduced by spasm of the artery and that even though this is transitory it may be sufficient to make manifest a threatening gangrene or to aggravate a gangrene already present. In one of the author's cases of beginning gangrene of the foot, periarterial sympathectomy led to a complete cure but it is not known how long this will continue.

In diabetic and embolic gangrene periarterial sympathectomy is contra-indicated.

In very rare instances even a properly carried out operation is without effect. STAHL (Z)

Danilopolu D. Investigations of Visceral Sensibility. The Possibility of Relieving Angina Pectoris by Resection of the Posterior Roots or the Corresponding Spinal Nerves (Recherches sur la sensibilité viscérale—possibilité de modifier les points de projection des sensations viscérales par la résection des racines postérieures ou des nerfs correspondants). *Bulletin de la Société Médicale de Paris* 1923 3 5 778

In a previous article the author showed that in attacks of angina pectoris the pain could be overcome by anesthetizing the spinal nerves upon the left side beyond the rami communicantes. From this finding he concluded that visceral pain is transmitted by the other visceral sensory nerves within the viscera itself. He assumed further that resection of the posterior roots or resection of the eighth cervical and first four dorsal spinal nerves upon the left side would ameliorate angina pectoris. In a case in which such an operation was performed it was demonstrated that this theory was correct and that the second dorsal root was of primary importance.

The author argues that the sensory aortic cardiac fibers pass by way of the rami communicantes which unite the inferior cervical ganglion and the first

thoracic sympathetic ganglion with the eighth cervical and the first four or five dorsal root ganglia. While it is true that some of the sensory cardiac fibers ascend in the vagus, the majority are probably contained in the cervical sympathetic trunk. After reaching the level of the dorsal root spinal ganglia visceral sensibility is carried by the tracts of general sensation. Within the sympathetic trunk sympathetic cardiac accelerator fibers, pulmonary vasoconstrictor fibers and coronary vasodilator fibers are intimately associated but at the level of the union of the anterior and posterior spinal roots they paralyze to form the spinal nerves the centrifugal fibers following the posterior roots and the centrifugal fiber the anterior roots. This in substance is the argument in favor of posterior root section. In the author's opinion section of the spinal nerves corresponding to the area of pain radiation may produce a like result.

Cervical sympathectomy by sectioning all of the fibers mentioned may produce severe myocardial damage to an already poorly nourished heart, interference with cardiac rhythm and pulmonary edema.

LOYAL E. DAVIS, M.D.

Bruening. The Operative Treatment of Angio-spastic Attacks. Especially Angina Pectoris (1) perit. Behnllun a. angospast. h. r. Zu staend in l. sonder. Angina pectoris 4 1 mml d. d. t. ch. G. s. f. f. 1923

The beneficial action of periarterial sympathectomy has been proved repeatedly. Leriche has reported a case in which its results were still present after three and one half years and Redner has reported beneficial effects lasting for a year and a half in a case of scleroderma of two years' duration and a case of angio-spastic gangrene of eight months' duration. Failures are due to faulty technique or the performance of the operation in the absence of indications.

The laceration of the afferent main artery must be removed with all vasovascular for a distance of 10 cm. and from the entire circumference of the vessel. The indications for the operation are trophic ulcers, angio-spastic attacks and arteriosclerosis. In one case of arteriosclerotic gangrene reported by Redner the operation was followed after a set back for six days by sudden improvement and subsequent healing. Recently following Jonnesco's example Redner has undertaken to extirpate the plexus in angina pectoris. In one case treated in this manner the blood pressure fell and the extremely painful attacks ceased. Besides the plexus and its ganglia the uppermost pectoral ganglion (stellate ganglion) must be removed.

An attempt to cure a case of hypertonia by extirpation of the plexus with periarterial sympathectomy on the carotid and vertebral arteries was without permanent benefit. In another case this treatment cured the after effects of encephalitis by improving the blood supply to the brain.

SEITZNER (Z)

Jonnesco T. Resection of the Sympathetic for Angina Pectoris (La ésection du sympathique dans l'angine de poitrine) *Presse médicale* 1933 1:57

Several objections have been offered to the procedure of resecting the cervical sympathetic trunk in cases of angina pectoris. Briefly these are (1) The cardiac sensory nerves are destroyed while the vagus remains intact. (2) The vasodilator nerves to the coronary arteries are destroyed in a condition in which the myocardium is already compromised by disturbance of nutrition. (3) The pulmonary vasoconstrictor fibers are destroyed with the possibility of producing pulmonary edema. (4) The accelerator fibers to the heart are sacrificed; the functional contractility of the heart being thus diminished.

The author refutes these contentions by stating that the sensory fibers from the central nervous system to the heart are contained within the vagus nerve; they are not concerned with the transmission of pain but are part of a reflex arc controlling the force of the heart beat and the circulatory pressure. The rôle of the sympathetic as a vasodilating mechanism of the coronary arteries is very doubtful. In the light of physiological experimentation the destruction of the pulmonary vasoconstrictors is of no importance and it has been shown also that animals show no diminution in the force of the contraction of the heart after sympathectomy.

The author reviews his own clinical cases and refers to the report of Coffey and Brown to emphasize the fact that angina pectoris is benefited by cervical sympathectomy. Lovat L. Davis, M.D.

### MISCELLANEOUS

Jordana J. V. The Cerebrospinal Fluid and Its Relation to the Elimination of Urea (Fluïd cefalo-raquideo y su relación con la eliminación de urea) *Archivos de medicina experimental* 1933 3:3

From a study of twenty-one cases of diabetes both insipidus and mellitus the author draws the following conclusions:

1. The withdrawal of cerebrospinal fluid in cases of diabetes insipidus with spinal hypertension causes a decrease in the quantity of urine eliminated in twenty-four hours. This decrease is proportional to the quantity of fluid withdrawn.

2. The withdrawal of cerebrospinal fluid in cases of diabetes mellitus does not cause any qualitative or quantitative changes in the urine.

3. In normal persons and in diabetics without spinal hypertension lumbar puncture does not cause any noteworthy change.

4. The arterial tension is in direct ratio to the tension of the cerebrospinal fluid and is increased at the moment of puncture by the reaction to the slight trauma. W. A. Brexman.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

**Aufanoff J** Tumors of the Male Breast (Gesetzliche Materialien über Brustdrüsen) *Klinisch-eksperimentell* 1922 11

On the basis of three cases observed by himself and a review of the literature the author arrives at the following conclusions:

Tumors of the male breast are rare. In the autopsy material of eleven large cities of Russia (totaling 212,000 autopsies) carcinoma of the male breast was observed in only five cases. Most of the subjects were elderly men. Trauma is often a definite etiological factor. Cures are more uncommon than in the female.

Benign neoplasms in the male breast are more rare than malignant growths. The clinical picture is similar to that in the female. The most common benign growths are tumors of a connective tissue epithelial character, such as the adenofibroma which often is due to mastitis.

This article contains the first collection of cases made in Russia—thirty-three in all.

BLUMENTHAL (Z)

## TRACHEA, LUNGS AND PLEURA

**Maier O** Intratracheal Tumors of the Thyroid Gland with the Report of a Case Cured by Operation (Ueber intratracheale Schilddrüsengehwüchste an Hunden) *operativ geheilt* (Fall) *Arch. f. klin. Ch.* 1923 6: 823

A woman 32 years old who was operated upon in the eighth month of pregnancy for a nodular colloid goiter was seized with attacks of increasing dyspnea a few weeks after a normal delivery and entered the hospital for the relief of this condition twenty-one weeks after the first operation. Laryngoscopy revealed on the left under the subglottic space a hemispherical protrusion which was covered by very red mucosa and greatly constricted the lumen of the trachea. Following a deep tracheotomy and dilatation of the tracheal walls upward a hemispherical tumor as long and thick as the phalanx of a finger was found attached by a broad pedicle to the left tracheal wall. The mucosa over the tumor was split and the tumor curetted out. The hemorrhage from the bed of the wound was controlled with the Paquelin cautery and sutures and the trachea was sutured above the tracheotomy wound.

Recovery followed but was delayed by bronchitis and wound infection. When the patient was discharged endoscopic examination showed the trachea and larynx to be free from obstruction.

On microscopic examination the tracheal tumor proved to be a proliferating adenopapilloma of the

thyroid gland. The primary goiter was not examined microscopically.

In connection with this case Maier discusses the etiology, symptoms and treatment of intratracheal goiters and reviews the literature which has appeared since his comprehensive work on the subject in 1920.

MARWEDEL (Z)

**Hauke H** Thoracoplasty in Tuberculosis of the Lungs (Zur Thorakoplastik bei Lungentuberkulose) *Beitr. z. klin. Ch.* 1923 13: 456

If artificial pneumothorax and thoracoplasty are compared in the urgent treatment of tuberculosis of the lungs thoracoplasty will be found easier to perform if it is done in two or more stages. By this method the more serious postoperative disturbances such as flutterings of the chest wall and paradoxical breathing are averted. The procedure of choice is Sauerknecht's paravertebral resection of the ribs from the eleventh to the first, by which a satisfactory compression of the thoracic cavity is obtained. The functional rest secured is due to the removal of the ribs to the very limit of the costal angle and to the considerable collapse of the thoracic wall. The narrowing of the thorax produced in this way effects a more uniform compression than pneumothorax and the lung retraction thus obtained is permanent. These statements are based on operative results.

SCHMIDT (Z)

**Naegeli T** The Surgical Treatment of Bronchiectasis (Die chirurgische Behandlung der Bronchiektasen) *Ztsch. f. allg. Med.* 1923 28: 193

The elimination of the basic disease which frequently is congenital or arises in connection with stenoses, shrinking processes of the lung or the abuse of alcohol and tobacco is a difficult problem. Early operation gives the best results, but the early diagnosis and the determination of the location and extent of the disease is often very difficult. Cases of bilateral involvement are generally not suitable for operative treatment. The congenital bronchiectasis located usually in the left lower lobe offers a better prognosis.

The extrapleural operative methods include thoracoplasty and pneumolysis and the intrapleural methods include artificial pneumothorax, compression of the lobe by plication and tamponade, ligation of the pulmonary artery and lobectomy. Pneumotomy is only a palliative procedure which, though removing the decomposing tissue, leaves behind a bronchial fistula which frequently can be closed only by a two-stage operation. Thoracoplasty does not give as good results as in tuberculosis because the bronchial wall has generally lost its pliability. It

may be supplemented by pneumolysis but because of the danger of secondary infection the latter should never be complicated by plugging with fat or paraffin. Phrenicotomy plays just the same unimportant part in this treatment as in artificial pneumothorax.

Ligation of the pulmonary artery causes shrinkage of the tissue of the lung but has little effect on the rigidity of the bronchial tube. Better compressions are obtained by displacement of the lobe of the lung (Garré) but this is not always sufficient. The method of Henschen who displaced the pulmonary lobe between the paralyzed diaphragm and the lobe of the liver and that of Schepelmann who resected the diaphragm and brought abdominal organs into the thorax have been tried only on animals.

Extirpation of the diseased portion of the lung which is possible only when the disease is limited to one lobe remains as the only therapy removing the cause. The technique must overcome very great difficulties as the occlusion of the bronchus is not always successful. The best procedure consists in ligation of the pulmonary artery, placement of the lobe of the acoplasty and then after shrinkage has set in a supplementary extirpation at a second or third operation. Extirpation removes also the danger of malignant degeneration of the lung.

BANGE (Z)

Von Winterfeldt H K The Roentgenology of Gangra of the Lung (Beitrag zur Roentgenologie der Gangra des Lungen) Festschrift G. B. R. 1933

The development of lung abscess formed through tissue destruction is a practically encapsulated cavity. Gangra of lung tissue is a dirty grayish green mass which actually disintegrates into a foul smelling fluid. Gangrenous cavities are formed by the sloughing up of non-encapsulated gangrenous foci. The walls are irregular shredded and ill defined.

Because of the difference in the pathogenesis of lung abscess and lung gangrene their roentgen pictures are different. The abscess is shown by the X-ray as a more or less large rounded bladder surrounded by pyogenic membrane and with a fluid level beneath the patient's position. The gangrene cavity has a fluid level with an indistinct air bubble above it within an irregular shadow. The walls of the cavity are not distinct. However the differential diagnosis between abscess and gangrene is seldom possible from the roentgen picture alone.

In conclusion the author strongly recommends treatment with neostilosan. LOHR (Z)

## ESOPHAGUS AND MEDIASTINUM

Jackon C P Endoscopy—Causes of Preventriculosis or Pre-entrical Stenosis? J. La. & Or. 1933

The author prefers the term preventriculosis to the obsolete term caudospasm because it has been shown largely through esophagoscopy that the stenosis in the syndrome is

not at the cardia. The various diseases producing preventriculosis are organic, spasmodic and combined organic and spasmodic.

As an organic cause of stenosis Sargnon has reported a congenital valvular condition and some observers have noted cicatrices. According to Polleston paralysis or continued inhibition of the esophageal longitudinal muscular fibers may interfere with the opening of the cardiac sphincter and cause hypertrophy. Solis Cohen and McNab mention unbalanced endocrines as a factor.

In the author's opinion the cramp or failure to open is due to the pinch cock action of the periesophageal diaphragmatic structures especially the sphincter-like prolongations of the crura which exist with kinking of the abdominal esophagus. Normally the pinch cock action prevents retrograde leakage of fluid that is swallowed when the head is down. A disordered action of the coordinated innervation producing the pinch cock action might cause preventriculosis.

Mosher believes that the lower esophageal opening is produced by liver movement imparted by the diaphragmatic and abdominal muscles during respiration. When the liver is up a momentary narrowing of the esophagus occurs at the upper edge of the liver. When the liver is down the esophagus is open. In cases of preventriculosis there is usually a element of stricture at the level of the upper edge of the liver. Occasionally Mosher has demonstrated by the esophagoscope and X-ray a narrowing of the entire liver tunnel. Stricture has been found in the central part of the tunnel. Narrowing is probably secondary to some previous traumatic or inflammatory process. Below the stricture the subdiaphragmatic esophagus is considered normal.

WALTER C. BURKET MD

Grégoire R S Cases of Pharyngo Esophageal Diverticula (Septic diverticula pharyngo-esophageal) Bull. t. mé. S. d. ch. d. P. 1933

Pharyngo esophageal diverticula formerly regarded as rare are now being discovered more frequently as the methods of examination improve. The author has seven cases. In this article he reports four cases two of which were treated surgically.

The diverticula in the discussion are found at the junction of the esophagus and pharynx in the space between the inferior border of the constrictor pharyngeus inferior and the upper border of the cricoid esophageal muscles or extending halfway between the superior and inferior portions of the cricopharyngeal muscle.

The presence of a diverticulum is not an absolute indication for operation. Even if diverticula of considerable size may not cause symptoms. However cancerous change is not rare and in the majority of cases operation is necessary for the relief of discomfort, regurgitation attacks of suffocation and starvation.

The diverticulum is always posterior but often prominent on the side. The author refers to previous articles for a description of his operative technique. Suture of the œsophageal wall he regards as better than invagination. In the majority of cases a preliminary gastro-tomy is unnecessary. For two or three days following the operation the patient is nourished by rectal enemata and glucose infusions. He is then given sterilized fluid for a few days and after fourteen days a general diet.

In two of the author's cases fistulae resulted from partial opening of the suture but closed in even and twelve days respectively. In the other cases recovery was uneventful. **RUDOLF MARY M.D.**

**Vinson P. P. Carcinoma of the Esophagus**  
*Am J W Sc 1923 cl 492*

From August 1, 1910 to August 1, 1921, 154 patients with cancer of the esophagus were studied in the Mayo Clinic. All but two were traced and a critical analysis of the group is presented. In the author's opinion cancer of the esophagus is more common than is generally believed.

The symptoms depend largely on the stage of the disease. In the early stages there is usually slight dysphagia during the swallowing of solid food. As the lesion progresses soft foods and finally liquids become obstructed. The food obstruction is progressive without remissions. It usually develops gradually but may begin suddenly. By the time the first symptom appears the disease is well advanced. Hiccough is an early and not infrequent symptom. Regurgitation is common. Generally it is voluntary and not delayed as in cardiospasm. As a rule the esophagus is very little dilated above the stricture. There is a continual loss of weight because of the food restriction. Pain is a late manifestation. It is substernal and may or may not accompany swallowing.

In the series of cases reviewed the average duration of symptoms was seven months and the shortest duration three weeks.

One hundred and twenty-seven of the patients were men and twenty-seven were women—a ratio of about 5:1. All but seven were more than 40 years of age. The youngest was 34 years of age.

The location of the lesion varied according to sex. In sixteen of the twenty-seven women the lesion was at the introitus whereas in sixty-four of the 127 men it was from 7.5 to 37.5 cm from the incisor teeth. Twenty-one of the patients had metastases, eleven of them from a lesion at the introitus. The apparently greater tendency for metastasis to occur in cases of lesions of the introitus was probably due to the fact that in such cases the cervical glands were usually involved and the condition therefore more easily recognized. As the majority of the women had a lesion of the introitus the relative increase in metastasis in females may be more apparent than real.

In the recognition of malignant œsophageal disease the history is of the greatest importance. The use of a blunt olive passed by means of a whale bone staff on a previously swallowed silk thread is of the greatest aid. The appearance of pink-tinged mucus on the wire spiral used as a guide on the thread when sounds are passed through a stricture is almost pathognomonic. The roentgenogram is of value in the diagnosis but not infallible. The œsophagoscope is of limited diagnostic aid.

**H. J. MOERSCH M.D.**

**Sauerbruch F. Transpulmonary Exposure of the Esophagus (Die transpulmonale Freilegung der Speiseröhre).** *Z. allg. Chir.* 1923 1: 889.

Sauerbruch describes a new method of exposing the posterior mediastinum to reach the esophagus which he calls transpulmonary exposure of the mediastinum and opening of the mediastinal cavity. This method indicated when the mediastinal cavity is filled with solid adhesions and bands rendering anatomical orientation difficult or impossible. The hilus and the posterior mediastinal cavity are approached through the lung.

Sauerbruch tried this procedure in a case of perforation of an œsophageal diverticulum into the lower lobe of the right lung. From the widely opened abscess cavity he worked his way through the lung to the esophagus by stages backward and toward the center of the chest severing and tying all intervening vessels. He gained access to the diverticulum at the level of the fourth thoracic vertebra. A slit-shaped fistula with white edges measuring 3 by 2 cm. revealed the perforation into the bronchus and admitted a thin probe into the esophagus. By the extensive removal of bone the large defect in the lung was then decreased so that at the time this article was written only suture or plastic closure of the fistula remained to be done. **BODE (Z.)**

## MISCELLANEOUS

**Hagen Torn I. A Method of Obtaining Wide Access to the Chest Cavity Without Causing Secondary Deformity of the Thorax (Eine neue Methode zum breiten Zutritt in die Brusthöhle ohne sekundäre Deformität der Brustkammer).** *Kl. Wschr.* 1922.

In cadavers and clinical cases the author found that a skin and muscle flap turned back in the region of two ribs on the anterior wall of the chest would give satisfactory access to the thoracic cavity without resection of the ribs. Four cases are reported. One was a case of diaphragmatic hernia following a gunshot wound and another a gunshot wound of the right side. In one case the operation was performed under local anesthesia which the author prefers. As a rule the flap was formed with its base at the sternum. This method never caused any deformity of the thorax. **BLUMENTHAL (Z.)**



# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

**Caccini V** Th Cure of Acute Purulent Diffuse Peritonitis by Intraperitoneal Injections of Sulphuric Ether (L. gu g ne d l l per t nite ta purul t diff sa co ions nd perito cal d t re llo o) *P l l R me 19 3 11 s p t 558*

Caccini reports four cases of acute purulent diffuse peritonitis treated by intraperitoneal injections of sulphuric ether. In the first case only one injection as made as the patient died. The second, third and fourth patients were given five, six and three injections respectively and recovered.

The ether injected into the peritoneal cavity increases the resistance of the peritoneum, favors deep restorative sleep by causing anaesthesia of the parts disinfects the peritoneum and the pus and transforms the sterile exudate into an autogenous and specific serum. Because of the rapidity of the cure the treatment is similar to a Besredka tachyphylaxis. *W A B EYAN*

**Hueltl H** Th Surgical Treatment of Diffuse Peritonitis (D h r u g l h B h d l n g d diff n p t nite) *G y g d t 1913*

Every case of diffuse progressive peritonitis should be operated upon just as soon as the diagnosis is made. The only exception being pneumococcus peritonitis and gonococcus peritonitis. Early recognition is of the utmost importance; it is less of an error to operate needlessly upon a case of chronic quiet circumscribed peritonitis (perimetritis), pericholecystitis or pericolicitis than to delay operation when it is indicated. The chief problem of treatment is to block off and remove the source of infection. Exudate found in the abdominal cavity can be removed just as successfully by irrigation as by sponging. The author is an advocate of careful drainage. The intestine must not be injured in this procedure and must not be allowed to glide out of the abdominal cavity. The operator should follow the motto of Murphy: "In quickly and out quickly."

The treatment of the abdominal cavity with antiseptics is not to be recommended at present. Drainage should be established at every point where the exudate collects. For this purpose gauze strips are brought to the surface of the laparotomy wound. Other incisions are usually superfluous. The removal of the exudate is facilitated by the Rehn-Fowlr half sitting position. Enterotomy or enterostomy to empty the distended intestine is justifiable only in practically hopeless cases. The best method of stimulating peristalsis is the application of heat. To stimulate the heart action intravenous injections of caffeine, camphor or a digitalis preparation are of

great value. The dehydrated organism can be given fluid by Murphy-Katzenstein proctoclysis. The value of intravenous saline infusion has not been settled up to the present time. *VON LOBMEYER (Z)*

**Cantalimessa Carboni L** The Question of Enterostomy in Acute Peritonitis (C t b t alla q est one d lla e t ost m a lla p nite t cut) *P l l Rome 1923 15 pr t 96*

In the author's case of peritonitis laparotomy disclosed a perforated ulcer of the small intestine. The opening was sutured and the abdominal wound closed without drainage. The peritonitis seemed to have subsided and by the fourth day after the operation there was an abundant fecal discharge. However, this improvement was soon followed by a change for the worse with rapid pulse, delirium and cyanosis ending in death. There was no autopsy.

The author questions whether in such cases of acute peritonitis due to a perforated ulcer an enterostomy done at the time of the primary operation might not be a life-saving measure. In 1911 Krogus reviewed 107 cases of enterostomy done as a complementary operation to the removal of the cause of the peritonitis. There were thirty-six recoveries. Recently Delore and Conrozier have also recommended enterostomy in acute peritonitis after cleansing of the peritoneum. The causal lesion should be treated first, but if this is all that is done the condition is often fatal on account of the vicious circle established between the peritonitis and ileus. The intestine covered with infected peritoneum, paralyzed, its contents ferment and the loops become distended. Thus the paralysis is aggravated and the peritonitis is maintained by aptic impregnation of the serosa and coats of the intestine. In the author's opinion enterostomy might prevent such complications. *W A BREYAN*

**Nigel G W** The Etiology and Importance of the Cystico-Duodeno-Gallbladder Stenosis (S g G t e Ob t 19 3 xxvi 365)

Peritoneal folds are occasionally found extending from the fundus of the gall bladder to the duodenum and transverse colon. These originate in fetal life and are due to persistence of the ventral mesentery caudad to the gall bladder and bile ducts and form a direct continuation with the lesser omentum.

Harris, Hamman, Homan and others report cases in which the symptoms led to a diagnosis of chronic cholecystitis, cholelithiasis or duodenal ulcer, but operation revealed only abnormal folds undoubtedly of embryonic origin which extended from the gall bladder to the duodenum or transverse colon. In most of the cases simple sectioning of the fold resulted in a permanent cure. The majority of the

subjects are middle aged and the complaints are usually long standing indefinite symptoms such as sour stomach fullness gaseous eructations and epigastric discomfort with dull constant pain and occasional knife like exacerbations. Coffey describes the roentgenographic findings in similar cases and calls attention to the fact that they may simulate those of gall bladder disease. Roentgenograms may show a partially constricted or compressed cap the left superior surface of which has a thin feathered out appearance while the right side is clear cut.

Harvey treated the entire subject of peritoneal folds and ligaments at length reviewed the literature and published a table showing the percentage of cases in which a cystocolic ligament has been found by various investigators.

At the Mayo Clinic a ligament extending from the gall bladder to the duodenum and colon was discovered in eighteen (12 per cent) of 150 consecutive autopsies. These included only cases in which the ligament extended at least half way up the fundus (sixteen cases) or was present as a continuous fold from the lesser omentum across the duodenum to the hepatic flexure of the colon (two cases). In structure and appearance the ligaments were identical with and formed a direct continuation of the lesser omentum. Infection was definitely ruled out as an etiological factor by both gross and microscopic examination of the ligaments and involved organs. Two of the subjects were premature infants of 8 months. Other congenital anomalies were noted in six cases (33 per cent).

In none of the cases could it be said that the fold had given rise to symptoms. However it is quite conceivable that such structures might produce symptoms. Undoubtedly they have a practical bearing in their relationship to neighboring pathologic processes. In the presence of infection or disease in a nearby organ they thicken and shorten and then may be considered identical with true inflammatory adhesions so far as the production of symptoms and their surgical relief is concerned. Not only are they potential adhesions themselves but they furnish a guide for the formation of true adhesions and their presence explains why such dense adhesions between the gall bladder and gut are sometimes found in cases of cholecystitis or duodenal ulcer which as judged by the primary pathologic process are apparently mild while in cases of apparently more advanced lesions there are few or no adhesions. It is essential for the surgeon to know these ligaments in order that he may not mistake them for true adhesions. G. W. NAGEL, M.D.

### GASTRO INTESTINAL TRACT

Wamberski W. Postoperative Hemorrhages of the Gastro Intestinal Tract (Zur Frage der postoperativen Blutung des Magens und des Intestins). *Gynäkolog. u. Akusher. Wochenschr.* 1922.

Postoperative hemorrhage of the gastro intestinal tract is very rare. The author reports the case of a

woman who had repeated hemorrhage following an operation for postoperative hernia in the linea alba. During the separation of adhesions the ligation of a few blood vessels was necessary. Vomiting began the day after the operation and persisted for six days. By the seventh day there was severe anemia with signs of internal hemorrhage which lasted for three days. For four days large masses of coagulated blood were passed after the use of enemata. The patient then recovered.

According to von Eiselsberg this complication occurs after embolism of the blood vessels of the stomach and is produced by ligation of the blood vessels of the peritoneum (retrograde embolism). Infection is also a factor of importance.

BLUMENTHAL (Z)

Watanabe T. The Effect of Bilateral Intrathoracic Sympathicotomy and Splanchnicotomy upon the Motor Function of the Stomach (Ueber den Einfluss der doppelseitigen intrathorakalen Sympathico- und Splanchnicotomie auf die motorische Funktion des Magens). *Fortschr. a. d. Geb. d. Physiol.* 1923, xxx, 512.

In four dogs the funiculus marginalis of the sympathetic nerve was divided intrathoracically above or below the exit of the splanchnic nerve. In the latter case the splanchnic area remained uninjured. The resulting clinical phenomena were the same. The observations were made by means of a permanent duodenal fistula and the X-ray. On the whole there resulted an enormous increase in excitability of the gastric musculature manifested by an increase in the peristalsis even to the bulb of the duodenum constrictions at the pylorus and a decrease in the time of expulsion. Retention may also occur. The stomach was changed to a long drawn-out tube and displaced toward the left and down. Its downward displacement was due to a change in the tone of the entire gastrointestinal tract. LOEWENTHAL (Z)

Bolton C. Diseases of the Stomach. Modern Methods of Investigation. *Brit. M. J.* 1923, ii, 269.

The study of the pathologic processes occurring in the stomach was given a decided impetus by the employment of the X-ray and the fractional test meal. Both of these methods of study have become firmly established and the value of their findings has been definitely determined. The estimation of alveolar air tension during digestion as an index of the output of acid or alkali from the blood has been found to furnish information which in many ways is confirmatory of that obtained by the fractional test meal.

The Rehfuess method of estimating the free hydrochloric acid and total acidity has proved of value from the purely clinical point of view but is not sufficiently accurate for scientific investigation because it neglects the protein hydrochloric acid and the hydrochloric acid neutralized by alkaline salts and transformed into inorganic chloride. The

neutralization process cannot be left out of account as normally it regulates the acidity of the gastric contents. In disease this self-regulative mechanism is interfered with by definite causes with consequent well defined results.

Boldyreff proved that neutralization in the stomach is due to the gastric juice of pancreatic juice from the duodenum. Therefore the regulation of the acidity of the stomach is a function of the duodenum.

When the ordinary gruel meal is given the percentage of total hydrochloric present represents as nearly as possible the percentage of total hydrochloric acid secreted. The curve for the total chloride is the true secretory curve.

A rise in the acid curve indicates the addition of hydrochloric acid to the stomach contents and a corresponding fall in the curve for the total chloride. However a fall in the acid curve does not mean that secretion has stopped because in the event of percentage of hydrochloric acid would remain constant as the stomach empties it indicates rather than that hydrochloric acid is decreasing, because of neutralization by an alkali for as the acid curve descends the inorganic chloride curve rises and the two cross each other. The fall in the hydrochloric acid curve and the concomitant rise in the sodium chloride curve thus result from pyloric relaxation and duodenal regurgitation and indicate the degree of pyloric to us. Duodenal regurgitation differs in normal persons but only within certain limits.

The essential cause of hypacidity of the gastric contents is a deficiency in the neutralization process. Duodenal regurgitation occurs normally only when the stomach is empty. Deficient regurgitation is the result of irritability of the pyloric sphincter leading to deficient relaxation or spasm.

The irritability of the pylorus may be increased by local disease or by irritability of the central nervous system which often is produced reflexly. In either case the pylorus may usually function normally disturbance of function occurring only from time to time. The excitant cause is mechanical or chemical. The more irritable the pylorus the slighter the excitant necessary. The normal pylorus responds to hydrochloric acid in the stomach contents. In disease the non-irritable pylorus may function normally either in the absence of hydrochloric acid or in the presence of hypersecretion.

In hyperchlorhydria the administration of alkalies from one and a half to two hours after meals will relieve the symptoms. The administration of atropine relaxes the pylorus and brings down the acid curve by neutralization in addition to diminishing the secretion. That atropine diminishes the secretion in the fasting stomach has been proved by the continued collection of the secretion after the stomach has been emptied. Its beneficial effect during digestion is due probably to its power to relax the pylorus and restore normal duodenal regurgitation.

Pyloric obstruction exhibits strikingly the effects upon the various curves of limitation of duodenal

regurgitation. In the presence of slight hour glass contraction the curve is entirely normal but when there is tight constriction the mechanical effect noted in pyloric obstruction results.

The author recognizes three conditions of subacidity.

1. Excessive neutralization. This is demonstrated by a large increase in the amount of inorganic chloride present as compared with the diminution in the amount of protein hydrochloric acid. A characteristic feature of the curves is that the inorganic curve is higher than the acid curve during the entire period of digestion. This condition is caused by duodenal regurgitation through a hypotonic pylorus. The stomach is usually atonic and peristalsis is diminished.

2. Simple diminution in the amount of gastric juice secreted. This is demonstrated by the total chloride curve standing at 60 or below while the stomach contains food.

3. Achylia gastrica. In this condition free acid is absent but protein hydrochloric acid is usually present in small amounts. The total chloride percentage is low (under 30) the curve approaching a straight line.

The three known diseases in which subacidity occurs are cancer of the stomach, gastritis and pernicious anemia. Cancer undoubtedly diminishes secretion and in many cases excessive neutralization occurs in addition. The curves do not show whether this is due to regurgitation or discharge from the growth.

Gastritis, both the acute and the chronic, causes a decrease in the amount of gastric juice secreted. It appears to the author that the relationship of hypersecretion to gastritis is that of the hydrochloric acid being the cause of the gastritis and both the hypersecretion and the gastritis being due to a common irritant.

In pernicious anemia functional hyposecretion appears to be the secondary result of bodily and nervous debility.

Following gastroenterostomy the secretion of the gastric juice remains unchanged. Gastroenterostomy relieves by facilitating the emptying of the stomach and allowing free regurgitation of intestinal contents.

There is as yet no general consensus of opinion as to what constitutes hyperacidity but it may be said that as a rule amounts above 30 c.c.m. indicate hypersecretion. Excessive secretion may not be continuous hence the importance of leaving the tube *in situ* for the collection of the juice after the stomach has become empty.

With regard to the type of the curve during digestion the author finds the only feature suggestive of hypersecretion is a rapid rise in the total chlorides when the stomach is full. The hydrochloric acid curve is not reliable as it is determined by the tone of the pylorus.

Hypersecretion in response to stimuli transmitted from the central nervous system shows secretion

to be continuous and the fasting juice excessive in amount. This type is apt to occur in spasmodic attacks.

Gastric and duodenal ulcers cause both local and pyloric spasm with resulting deficiency of neutralization and hyperacidity of the stomach contents as in pyloric obstruction and the proximal sac of an hour glass stomach. WILLIAM E. STACKELEY MD

Kantor J L. Antacid Gastric Therapy with Special Reference to the Use of Neutral Antacids. *J Am Med Ass* 923 lx v 816

The relief of gastric pain after meals by the administration of alkalis is common knowledge. Kantor reminds us that the mechanism whereby pain is dissipated in such instances is not so simple as we have been led to believe. The old teaching was that excess of acid in the stomach excites irritation causing spasm of the gastric musculature with associated pylorospasm and cardiospasm. Increased tension in the stomach or any other hollow viscus is painful. The alkali overcomes the pain by reducing the hyperacidity and thereby lessening the spasm.

Magnesium oxide acts as a local antacid, a systemic alkali and a laxative. With regard to the effects of long continued alkalization therapy, Hardt and Rivers found that certain patients developed a toxæmia with changes in the kidneys and blood chemistry following the prolonged administration of alkali in the treatment of gastric ulcer.

In a series of 20 cases Kantor used the neutral secondary and tertiary phosphates of calcium and magnesium. These appeared to reduce the freeness without altering the total gastric acidity and did not cause systemic alkalization.

The routine treatment has been the administration of pure calcium or magnesium phosphate in doses of one third to two teaspoonful after meals. These are tasteless and are not excreted in the urine. They control gastric symptoms as well as the alkalis and their prolonged administration cannot affect the general metabolism or cause injury to the kidneys. JOHN W. ALLEN MD

Chabrol F and Blum J. Fissure Hemorrhages Due to Chronic Arteritis—Hæmatemesi and Melæna Simulating a Gastroduodenal Ulcer for Eighteen Months. (*Fr*) *Bull Soc Méd d'Alger* 1923 28 333

In the case report of the hæmatemesi and melæna has been present for eighteen months and led to numerous examinations of the stomach for ulcer. The examination showed the gastric intestinal tract to be normal but revealed a large aneurism of the arch of the aorta.

The patient succumbed from sudden rupture of the aneurism. Autopsy revealed a small ulcer 5 mm in length between the trachea and aorta and a small ulcer in the wall of the trachea underlying

this fissure. The hæmoptysis and the blood in the stools were therefore attributed to the gradual oozing of blood into the trachea. LOYAL E. DAVIS MD

Carisi G. Clinical Indications in the Diagnosis of Gastric Ulcer. (*Id*) *Atti della clinica nella diagnosi dell'ulcera gastrica* *Riforma med* 923 xxvii 584

On the basis of 104 proved cases the author discusses the syndrome and the laboratory findings accepted as a basis for the diagnosis of gastric ulcer. Vomiting was observed in 47 per cent of the cases. The old theory that an excess of hydrochloric acid means ulcer is incorrect. In the author's cases hyperacidity was present only in crises of clearly pyloric or juxta pyloric ulcers and in only 70 per cent of these. In ulcer of the body of the stomach the acidity ranged from 50 to 60 per cent in 40 per cent of the cases, hypoacidity (below 50 per cent) was present in 30 per cent and true hyperacidity (above 60 per cent) in only 30 per cent. These findings are almost identical with those recently reported by Alessandrini and Patterson who concluded that there is normal or hypoacidity in ulcer of the body of the stomach and frequent hyperacidity in cases of pyloric ulcer.

With regard to the amount of gastric juice the author believes that the presence of 100 or more cubic centimeters in the fasting stomach indicates pyloric ulcer. In cases of ulcer far from the pylorus the quantity does not exceed 30 or 40 c cm.

In Carisi's opinion there are no pathognomonic symptoms of gastric ulcer. Cases of ulcer with the classic syndrome are uncommon. W. A. BRENNAN

Gibson C L. Acute Perforation of the Stomach and Duodenum With a Report of Sixty Cases. *Am J Med Sci* 923 clx 809

Acute perforation of the stomach or duodenum is characterized by an acute agonizing knife-like epigastric pain associated with severe shock. Vomiting occurs in less than half of the cases and hæmatemesis is rare. Cold sweat appears. The crises express great agony. A characteristic symptom is severe pain in the left supraclavicular fossa which comes on soon after the perforation and lasts only a few minutes seldom more than fifteen. The abdomen is retracted, rigid in its upper half and very tender on pressure. The author has never noted olivulation of the liver dullness. Twenty-four hours after the perforation the symptoms are masked by peritonitis. The symptoms are modified by various physical conditions and the extent and severity of the lesion.

In the differential diagnosis is appendicitis, acute cholecystitis, acute pancreatitis and acute bleeding of a gastroduodenal ulcer must be considered. Two acute abdominal conditions may occur simultaneously.

Through a right rectus incision the author opens the peritoneum after he has flooded the wound with water in order to determine the escape of a bubble of air. If the perforation is temporarily sealed off little

Oudard and Jan The Treatment of Perforated Gastric Ulcer Perforated Duodenopyloric Ulcers (Traitement des ulcères gastropyloriques perforés des duodopyloriques perforés) *Bull. et Mem. Soc. Ch. de P.* 1923 XI 351

The authors performed a gastro-enterostomy in every case of perforated gastric ulcer for the following reasons:

- 1 Closure of the ulcer produces if not complete obstruction at least a narrowing in the pyloroduodenal lumen which might have very unfavorable consequences.
- 2 The closure of the perforation is not always perfect.
- 3 Gastro-enterostomy favors the healing of the ulcer.
- 4 The closure of a very large ulcer is practically the same as exclusion and in such cases gastro-enterostomy is really imperative.
- 5 Gastro-enterostomy does not greatly increase the operative trauma.

Conclusions are required

WITT C. BURRET M.D.

Hiltzenberger K. Ulcer Cicatrix of the Stomach (Ulcer der Ulcus Cicatrix Mag.) *Arch. f. path. Anat.* 1923 13 424

An examination of thirteen ulcer scars was made with particular reference to histology. In the cases of fresh ulcers this was entirely absent. In the cicatrices it was sparse but with the age of the scar it increased and in old well formed scars was present to a considerable degree. It is of importance apparently because it prevents the formation of diverticula and maintains the firmness of the stomach.

The arrangement of the elastic tissue is generally characteristic. The firmest and thickest masses lie close beneath the mucosa while toward the serosa the fibers become fewer and weaker and only in the subserous region do they again form a substantial layer.

The mucous membrane is generally thicker over the cicatrix than in its vicinity and is atrophic elsewhere. The mucous membrane is atrophic. At the edge of the scar proliferation of the glands is frequently seen. Toward the scar the different layers of the wall of the stomach increase in thickness and finally merge with the cicatrix.

New scars are poor in elastic tissue elements but rich in vessels while old scars are rich in elastic tissue and poor in vessels. Lymph follicles are always absent.

To LER (Z)

Beer T. The Surgery of Gastric and Duodenal Ulcers and Their Complications (Beitrag zur Chirurgie des Magens und Duodenalschwermetallgeschwülste) *Arch. f. Ch.* 1923 13 1

The author reviewed 146 cases of gastric and duodenal ulcer operated upon in the Königsberg clinic from 1909 to 1920. There were 103 cases of

ulcer of the stomach thirty five of ulcer of the duodenum and eight of multiple ulcers. Most of the patients were between 40 and 60 years of age. Ulcers of the duodenum occurred four times as often in men as in women. Exclusive of nineteen perforating ulcers with an operative mortality of 63 per cent the operative mortality was 10.5 per cent. Hyperacidity was found in 51 per cent of seventy one gastric analyses normal acidity in 32.4 per cent subnormal acidity in 15.5 per cent and absence of free hydrochloric acid in 29.4 per cent.

In 75 per cent of ninety two roentgen ray examinations it was possible to locate the site of the ulcer before operation.

In cases with scars and uncomplicated ulcers of the body of the stomach simple gastroenterostomy gave good results. In cases with scars and uncomplicated ulcer of the duodenum at the pylorus or in its vicinity gastroenterostomy was supplemented by fascial ligation folded tamponade or unilateral exclusion of the pylorus. In cases of callous and penetrating ulcers of the lesser curvature transverse resection was the method of choice but if this appeared too dangerous a simple gastroenterostomy was done. Penetrating duodenal ulcers were resected according to the Billroth I or II method if this was technically possible. The operative mortality of gastroenterostomy with or without exclusion of the pylorus was 2.9 per cent.

Of fifty one patients forty (78.4 per cent) may be regarded as cured. Of six subjected to unilateral exclusion of the pylorus five were cured and one greatly benefited. Of twelve subjected to transverse resection who were re-examined all were cured. The Billroth methods have a high operative mortality but their permanent results are good. No case of peptic ulcer of the jejunum was observed following unilateral exclusion of the pylorus. The fact that peptic jejunal ulcers develop most frequently after gastroenterostomy without radical removal of the duodenal ulcer strengthens the theory that the continued presence of the ulcer in the duodenum is of etiological importance. If this is correct primary radical removal of the duodenal ulcer would be indicated as a prophylactic measure. In the cases of patients subjected to gastroenterostomy with or without exclusion of the pylorus and in those subjected to the Billroth resection method gastric analysis following a test breakfast showed usually a very marked decrease in the acidity. Also following transverse resection very low values were found for free hydrochloric acid and total acidity. If gastroenterostomy or resection are followed by disturbances x-ray examination with the test meal can be undertaken without danger.

The author regards the physiological narrowing of the stomach at the pylorus as a factor favoring the development of ulcer. The angle and the stricture development at the isthmus ventriculi may be entirely removed by transverse resection and narrowing of the pylorus by pyloric resection.

KONJIZNY (Z)

#### Bennett T I The Early Diagnosis of Cancer of the Stomach by Means of Gastric Analysis *Brit Med J* 1923 II 275

Bennett states that if the patient with cancer of the stomach is properly prepared overnight and if careful examination of the contents of the fasting stomach is made the following morning evidence of stagnation or of hæmorrhage with aberrant secretion or of both will usually be found. These signs are not apt to be confused with those noted in other diseases.

The biochemist is too often asked to make a report on a specimen removed from a patient whom he has never seen and of whose clinical state he is entirely ignorant in consequence his reports tend to become technical statements written from a viewpoint very different from that of the clinician and tend to omit data which though of small chemical importance may be of great significance in a clinical inquiry.

The detection of early gastric carcinoma becomes possible if steps are taken to make stagnation easily demonstrable this can be done by giving finely divided charcoal in milk the evening before the examination.

In a series of fifty three cases in which the clinical diagnosis of gastric carcinoma was made charcoal was visible in the fasting contents the next morning in thirty and other signs of stagnation were present in twenty of the remaining thirty five cases. In thirty five cases fresh or partially broken up blood was present.

In conclusion the author states that if gastric analysis were regarded as a clinical rather than a laboratory procedure and if the evidence discussed were sought in every case of gastric disturbance cancer of the stomach would be diagnosed much more frequently while it is still in the operable stage.

WILLIAM E SHACKLETON M.D.

#### Waitzfelder W The Roentgen Diagnosis of Carcinomatous Ulcer (*Zur Röntgendiagnose der Ulcus carcinomatosa*) *Festschr. d. G. b. d. R. e. i. g. St. Abt.* 1923 IV 91

As even the pathologico-anatomical differential diagnosis between callous and carcinomatous ulcer is often difficult the clinical diagnosis is usually impossible. However there are a few cases in which the history, the clinical picture and especially the roentgen ray examination may furnish important indications of malignant change in a gastric ulcer.

The author reports two cases in which the development of carcinoma in an ulcer was shown by the roentgen ray and confirmed at operation. The first was a case of carcinoma of the lesser curvature in which in addition to the positive signs of ulcer consisting of a niche and spastic contraction a filling defect could be seen. The second was a case of ulcer of the pylorus in which the roentgen picture of a benign pyloric stenosis became complicated by a distinct filling defect in the outline of the stomach.

GRAUGAN (Z)



In early childhood when practically only the acute intussusception occurs, shock is the chief complication frequently leading to death. There is also great danger of peritonitis because of the greater tenderness and susceptibility to injury of the infant's intestine.

The symptoms of importance in the diagnosis are severe pain due to the traction on the mesentery which frequently causes collapse, bloody stool, a tumor which is palpable under narcosis, and in rare cases fecal vomiting. According to Klobner the X-ray may give conclusive evidence of intestinal obstruction by revealing the presence of distention above the constriction. Spontaneous cure of intussusception is rare in children and cannot be counted upon. Internal therapy such as the introduction of air or better of water and massage can be successful only in the very first hours and soon becomes contraindicated because of the danger of perforation or increasing the invagination by enlarging the sheath and forcing it over the intussusceptum. Intussusception in childhood is therefore to be regarded as a surgical condition in which a favorable outcome depends upon early operation. This should consist preferably of a laparotomy and reduction of the intussusception under light chloroform anesthesia. When there is interference with the nutrition of the invaginated portion (black discoloration, failure of peristalsis) and when reduction of the intussusception is impossible, resection must be performed. The steps in this technique are described as follows:

1. Suturing of the serosa at the neck of the invagination to the proximal loop.
2. Longitudinal incision of the intussusciens opposite the mesenteric insertion.
3. Circular separation and suturing of the inner and middle cylinders as close to the neck of the intussusciens as possible.
4. Removal of the strangulated portion.
5. Suture of the incision in the intussusciens.

If the invaginating portion also shows disturbances of nutrition, resection of the entire mass is in order.

Of the author's ten patients, eight were cured by operation and two died. One of the latter was not operated upon.

SEYMOUR (Z)

**Descarpentries** **Thir** **Cases of Intestinal Invagination in Children** (T. C. L. N. M. T. T. 1. 1. he l'enf. t. B. N. t. m. S. d. A. a. Pa. 9. 3. xl. 605)

The first two of these three cases which were operated upon by the author were fatal. In the third in which he resorted to drainage of the cæcum through the appendix, there was rapid recovery. The drain was inserted in the appendix after the latter had been brought to the surface through a McBurney incision and sutured to the skin. On the fifteenth day the appendix was sectioned and the cæcum and external opening were closed. The operation quickly evacuated the toxic intestinal con-

tents, combatted the effects of paralytic ileus and prevented recurrence of the invagination.

W. A. BRENNAN

**Lagrot** **F.** **Submesenteric Strangulation of the Small Intestine Due to Abnormal Insertion of the Mesentery** (F. t. a. l. e. m. t. s. o. u. s. m. é. e. n. t. e. i. q. u. e. d. u. g. é. l. p. a. r. s. u. t. d. i. n. s. t. u. o. a. n. n. a. l. e. d. u. m. é. s. e. n. t. è. r. e.) *Bull. t. m. é. m. S. o. c. a. n. a. t. d. e. P. a. r.* 923 c. 1 153

The author's case was that of a man aged 50 years. Strangulation of the small intestine by the mesentery is very rare.

Normally the mesentery is inserted at the duodeno-jejunal angle. In the case reported it was inserted high on the lumbar spine and the loop of gut was strangled between it and the spine. The patient died of intestinal occlusion of eight days' duration. The cause of the occlusion was found at autopsy. Signs of previous attacks included a bilobular formation of the stomach and scars on the transverse mesocolon. A very long ileocecal appendix was found just beneath the kinked mesenteric insertion. The primary iliac artery was calcified, the left testis was in inguinal ectopia, and the left pleura showed effusion.

In the author's opinion the occlusion was due to the abnormally elevated situation of the cæcum arrested in its descent, this anomaly disturbing the line of insertion of the mesentery on the spine.

W. A. BRENNAN

**Rosenfeld** **A.** **Three Cases of Ileus Due to Defects in the Mesentery** (D. i. l'ælle von Ileus af Ige D. i. k. t. n. d. M. t. t. u. m. s.) *E. s. t. 4. s. t.* 1923 11 144

Following a brief review of the literature and a discussion of the causes of mesenteric defects, the author reports three cases in which large sections of the small intestine slipped through such defects and became incarcerated. In two cases there was axial torsion of 180 degrees. Although operation was performed a few hours after the beginning of the pain and other indications, portions of the incarcerated gut in two cases were found to be almost gangrenous and both of these patients died, one of them from pneumonia after the drain had been removed and the laparotomy wound had healed by primary intention. The third patient had a smooth convalescence and was discharged cured.

ROSENFELD (Z)

**Beck** **A.** **The Diagnosis of Duodenal Ulcer** (D. e. g. o. s. e. d. U. l. c. u. s. d. u. o. d. e. n. i.) *B. t. r. k. l. n. Ch.* 9. 3. x. x. 3

The accuracy of clinical diagnosis was determined in 106 cases operated upon. A probable diagnosis of duodenal ulcer had been made in 90 per cent. The history was of value especially when it included night pain, hunger pain and pain a few hours after meals. The pain was usually localized to the right of the umbilicus or in the epigastrium. Vomiting of a watery vomitus was mentioned in nearly half of



the cases and acid regurgitation in more than half. The periodicity of the attacks is very characteristic. Palpation occult blood and the acidity index are of little value. The roentgen examination should not be overrated. Too much importance is often ascribed to direct bulbous symptoms. New cases are characterized chiefly by hypertrophy of the lower part of the stomach, increased peristalsis and frequent tilting of the bulbous while in older cases motor insufficiency is the most prominent sign.

B LNER (Z)

Denk W. Repeated Resection of the Stomach. Anotomy and Colon in the Treatment of Peptic Ulcer of the Jejunum (Zentralblatt für Magen- und Darmkrankheiten). 1913. 93: 1466.

The patient, a woman 3 years of age had been operated upon in 1913 for duodenal ulcer, unilateral excision of the pylorus and by the von Eisberg method. In 1914 a peptic ulcer of the jejunum appeared and perforated into the transverse colon. At a second operation the stomach and the anastomosis at the middle portion of the transverse colon were resected. Six months later another peptic ulcer developed. Because of the patient's weak condition and the large size of the inflammatory tumor a temporary jejunostomy was done. This was followed by a considerable improvement but about ten months later there were signs of a second jejunal colic perforation. Another resection performed as shown in six illustrations included in the article was followed by a successful result.

VORSCHUETZ (Z)

J. Hinson J. A. McKel. D. Erticulum as an Etiological Factor in Intestinal Obstruction. A Report of Three Cases. *Minnesota Medical Journal*. 1913. 479.

Some remnants of the omphalo-mesenteric duct is found in 1 per cent of all persons examined. The duct may remain patent through out its entire length or only in the middle segment. When it remains patent only at the intestinal end it is known as Meckel's diverticulum. This is the most common type observed and may or may not have a mesenteric attachment of its own.

A diverticulum of this type is subject to the diseases common to the intestinal tract. It may become inflamed and its lumen may become occluded by a foreign body. More commonly however it is itself the cause of intestinal obstruction. According to Halstead it was the essential factor in 6 per cent of a series of 669 cases of intestinal obstruction. The most common form of obstruction is brought about by a constricting band consisting of the diverticulum or its cord. Obstruction from this cause occurs usually about the twentieth year of age but may be found also in the very young and the very old.

The presence of the anomaly is usually discovered at operation for intestinal obstruction or a uterine appendicitis. It is not as rare as many surgeons be-

lieve and the possibility of its presence is important in considering the acute abdomen. The author reports three cases upon which he operated.

WILLIAM J. PICKETT M.D.

Solieri S. Congenital and Acquired Deformity of the Ileo-Cæco-Appendicular Plica Caused by Ileocecal Positional Stenoses (Differential diagnosis of the ileocecal stenoses). *Archiv für Klinische Chirurgie*. 1913. 93: 53.

On the basis of three cases which were operated upon the first for chronic appendicitis with probable pericolic membranes and the second and third with the clinical diagnosis of ileocecal stenoses due to adhesions following operation for appendicitis Solieri reaches the following conclusions:

1. The last portion of the ileum may assume a vicious position with respect to the cæcum through adherence to the cæcum and rotation of its axis downward and externally. Such an abnormal position creates an obstruction to the evacuation of feces from the ileum into the cæcum corresponding to the ileocecal valve, an ileocecal stenosis of position. It may be due to a congenital deformity or to an acquired retraction of the ileo-cæco-appendicular plica.

2. Such a positional ileocecal stenosis is distinct from others located in the right iliac fossa which depend upon a quite different anatomic pathological condition (perileocecal membrane, Lane's kink, etc.).

3. The cicatricial adherence of the ileum to the cæcum may follow an appendectomy as the result of constriction of the ileo-cæco-appendicular plica by the ligatures applied for hemostasis prior to section of the mesentery.

4. Therefore during an operation for appendicitis the relationship of the ileo-cæco-appendicular plica to the appendix mesentery and cæcum should be determined and the mesentery and plica sectioned separately in such a way that the ileum will remain free and will not become twisted beneath the cæcum.

5. In operations on the cæcum and appendix the surface of the cæcum which is freed of serosa should be well peritonized.

W. A. BRENNAN

Goss et al. Cancer of the Lower End of the Small Intestine Treated by Deep Radiotherapy After Ileocecal Anstomosis. Extirpation of a Second Operation. A Detailed Histologic Study (Cancer of the Small Intestine. A Test Case). *Journal of the American Medical Association*. 1913. 11: 101.

The author reports a case of cancer of the small intestine in a female 64 years of age. The clinical picture was characterized by painful peristaltic contractions of the subumbilical region, vomiting and the signs of threatening intes-

tinal obstruction. The condition had begun six months previously as a gastric disturbance with epigastric heaviness, the eructation of gas, constipation alternating with foetid diarrhoea and fever for four weeks. Two months later serpentine movements appeared around and below the umbilicus. These were associated with severe pain (not true colic), nausea, vomiting and the passage of three or four foetid blood free diarrhoeal stools a day. Subsequently attacks lasting forty-eight hours recurred every six or eight days except for a period of twenty-eight days when the patient followed a medical régime and only slight abdominal contractions occurred at intervals at night. X-ray examination showed only a dilated rectal pouch.

Operation revealed an annular growth at the lower end of the ileum with marked lymphatic extension in the mesentery and small subperitoneal nodules which seemed to indicate that a sufficiently wide excision would be impossible. Therefore a lateral anastomosis was made and followed by deep radiotherapy. The roentgen treatment was particularly easy because of the thin abdominal walls and the relative fixity of the tumor under the wall. Beginning on the twenty-eighth day after the operation nine treatments totaling seven and one-half hours were given with a 4 ma and a 40-cm spark at a distance from the cathode to the skin of 35 cm and with a filtration of 1 mm of doubled zinc and 2 mm of aluminum. The rectangular opening was 1 cm on the side. Finally two months after the first operation the tumor and 9 cm of the intestine were resected. The mesenteric glands were no longer perceptible. The intestine at the level of the neoplasm appeared fibrous. The patient made an uneventful recovery.

The specimen showed almost complete obstruction, induration of the intestinal wall and mesentery and ulceration of the entire inner circumference with an indurated spreading edge. Microscopic examination confirmed the disappearance of all cancer cells.

Lateral anastomosis followed by deep radiotherapy and subsequent resection was preferable to radiotherapy without operation because the cicatricial contracture resulting from the X-ray caused stenosis threatening obstruction.

Tuffer calls attention to the fact that frequently gastric and intestinal cancers which are removable at the first operation are aggravated and disseminated by exploratory manipulations to such an extent that from four to six weeks later they become inoperable.

In Hallopeau's opinion it is well to delay operation for from four to six weeks after radiotherapy in order to obtain the full effect of the X-ray on the tumor.

WALTER C. BURKET, M.D.

Burnett, F. L. The Intestinal Rate and the Form of the Faeces. *Am J Rtg* 21:93, 1929.

The intestinal rate was estimated by studying X-ray plates made five, ten, twenty-five and fifty hours after the taking of the barium and by noting

the length of time after the ingestion of 50 c cm of millet seeds when more than five of the seeds were first and last seen. The latter was the method commonly employed.

The time taken by the food to pass through the gastro-intestinal tract seemed to bear a definite relation to the form of the faeces. When the seeds first appeared at fourteen hours and were still present at sixty-two hours (14-62) the stools were soft and formless. When the rate was 25-97 the faeces were formed with marks and when the rate was 62-134 they were entirely composed of units. Accelerated rates with a variation of from 60 to 125 hours in the initial appearance of the seeds gave rise to large stools with units, marked portions and soft formless portions. Retarded rates were productive of small stools with small units.

Not only the study of the rate from the physiological viewpoint but success in the treatment of patients indicates that the unit form of the faeces is the normal one and that the intestinal contents have completed the three essential forms of intestinal motility. Marks are an indication of haustral segmentation.

CHARLES H. HEACOCK, M.D.

Giacinto, G. The Surgical Treatment of Megacolon. (Contributo al trattamento chirurgico del megacolon). *Pel clin R me* 1923 xxx sez chir 28.

Giacinto reports two cases of megacolon in adults. In one case the enormous dilatation was limited to the iliac sigmoid and caused the phenomena of occlusion. A caecostomy having failed to give permanent relief, the loop was resected and the continuity of the intestine restored by end-to-end anastomosis. The patient died of peritonitis. In the second case a caecostomy followed later by colectomy gave an excellent result.

The author summarizes the results of various operations in 219 cases as follows:

Operati	Cases	Rec	Recu	D	th
I-es anal p	5				4
Valvulomy	5	3			
Laparomy			4		6
Artificial rect					
Ileoca	3	3	5		5
Colostomy	5	5	3		7
Coloplasty (Fth)					
Coloplasty (Fth)	43	6	5		
Coloplasty (Fth)			7		
Coloplasty (Fth)	4	4			
Coloplasty (Fth)	8	59			8
Total	9	16	4		6

Some surgeons believe that the treatment of megacolon should always be surgical because of the necessity for constant enemata, the establishment of chronic stercoræmia and the possibility of acute occlusion or volvulus. But Giacinto maintains that this condition can be supported for decades without great injury to the general health and that operation should be limited to cases accompanied by acute or subacute occlusion and to cases with severe stercoræmia. When occlusion is incomplete repeated

en m t a h uld be tried before operation In cases w th ompl te occl u on complicated w th ster c ræmia the utho fa ors colectomy

W A B R N A N

Lo an A H Tlree Ca s of Chronic Ulcerative Col t Cured by Iodine M d Cl V l m

I t n v us methods of treating chronic ul ati of t f unk n etiology tincture of ol v g en b n uth It w s found that th u t h f d th ough th intestinal canal as the i l l of potas un v h i h as excreted through the N l l e f t s v e e n e t e d

I h r cas s r p o t e d r e e n t i r e l y c u r e d a n d a n y o t h s v e r e t e m p o r a r l y b e n e f i t e d I n o t h e r s h v t h r e a s n o i m p r o v e m e n t T h c o n c l u s i o n d r a n t h a t t h e l i n e a c t e d b y c a u s i n g a g e n e a l m t a b o l i c h a n g e r a t h e r t h a n b y i t s l o c a l e f f e c t

P W B O W N M D

Miller R T Jr Cancer of the Colon t  
V g 23 l 09

This art l i b a s e d u p o n 129 c a s s o f c a n c e r o f t h e c o l o n a n d s i o f t h e r e c t u m A t t h e t i m e o f t h e i r a d m i s s i o n t o t h e h o s p i t a l o n l y a f e w m o r e t h a n o n e h a l f o f t h e p t e n t g a e a h u s t r y o f p a r t i a l i n t e s t i n a l o b s t r u c t i o n a n d i n t h e c a s e s t h e c o n d i t i o n h a d b e e n p r e s e n t f o r n e a r l y y e a r R e s e c t i o n r e s u l t e d i n a f i e y e a r c u r e n 10 p e r c e n t o f a l l c a s s a d m i t t e d a n d i n 25 p e r c e n t o f t h o s e i n w h i c h t h e o p e r a t i o n w a s s u r v i d

E x a m i n a t i o n o f t h e t i s s u e r e m o v e d d i s c l o s e d b u t o n e c a e a t h m e t a s t a s i n t h e l y m p h a t i c g l a n d s T h i s p t i e n t w a s l o t s i g h t o f s i x a n d a h l f y e a r s a f t e r t h e o p e r a t i o n A s 25 p e r c e n t o f t h e r e c u r r e n c e s a p p e a r a f t e r t h e e n d o f t h e f i f t h y e a r i t i s e a s o n a b l e t o a s s u m e t h a t h e d i e d o f r e c u r r e n c e I f t h i s i t r u e t h r i s i s n o e v i d e n c e i n t h e s e r i e s o f c a s e s r e l i e d t o i n d i c a t e t h a t c a n c e r o f t h e c o l o n i s c u r a b l e b y o p e r a t i o n a f t e r t h e o c c u r r e n c e o f m e t a s t a s i s t o t h e l y m p h a t i c g l a n d s

T h e a u t h o r c o n c l u d e s t h a t i f a c a s e i s c u r a b l e b y s u r g i c a l m e a n s t h i s r e s u l t w i l l b e a c h i e v e d j u s t a s s u e l y b y l o c a l e x c i s i o n o f t h e g r o w t h b e a r i n g p a r t o f t h e g u t a s b y a n o p e r a t i o n o f m u c h g r e a t e r e x t e n t H o w e r t h e a r r a n g e m e n t o f t h e b l o o d v e s s e l s o f t h e c o l o n i s s u c h t h a t i t m a y b e n e c e s s a r y t o m a k e a m u c h m o r e e x t e n s i v e r e s e c t i o n i n o r d e r t o a s s e r t h e v i a b i l i t y o f t h e r e m a i n i n g t i s s u e s

S M E L K A N N M D

Rankin F W and Scholl A J Resection f the  
Pro m l Col n l M l l g n a n c y 4 c k 5 g  
19 3 1 58

T h e r i g h t h a l f o f t h e c o l o n i s r e a d l y m a n i p u l a t e d p e r m i t t i n g g o o d s u r g i c a l e x p o s u r e T h s h a l f o f t h e c o l o n i s n o t e s s e n t i a l t o l i f e a n d i t s r e m o v a l i s n o t o f t e n f o l l o w e d b y s e r i o u s c o m p l i c a t i o n s M a l i g n a n t t u m o r s i n t h e c æ c u m a n d a s c e n d i n g c o l n m e t a s t a s i s l a t e c o n s e q u e n t l y t h e r e s u l t s o f t r e a t m e n t o n t h e g r w t h a r e g o o d I f t h e c a n c e r i s i n t h e r i g h t

s i d e o f t h e c o l o n t h e b e s t r e s u l t s a r e o b t a i n e d b y r e m o v i n g t h e r i g h t h a l f o f t h e c o l o n a n d a p o r t i o n o f t h e i l e u m a n d f o l l o w i n g t h i s p r o c e d u r e w i t h a n i l e o c o l i c a n a s t o m o s i s T h e r i g h t b o w e l i s m o b i l i z e d b y f r e e i n g t w o p o i n t s o n e a t t h e c æ c u m a n d t h e o t h e r o n t h e t r a n s v e r s e c o l o n w h e r e t h e r e s e c t i o n i s t o b e p e r f o r m e d T h e p e r i t o n e a l a t t a c h m e n t o f t h e r i g h t c o l o n t o t h e r i g h t a b d o m i n a l w a l l i s t h e n d i v i d e d t h e c o l o n i s d r a w n t o w a r d t h e m i d l i n e a n d t h e c o l o n a n d i l e u m a r e r e s e c t e d b e t w e e n c l a m p s

T h e r e a r e s e v e r a l c o m m o n m e t h o d s o f r e s t o r i n g t h e c o n t i n u i t y o f t h e l u m e n o f t h e b o w e l a f t e r r e m o v a l o f t h e p r i m a r y g r o w t h L a t e r a l a n a s t o m o s i s m a y b e c a r r i e d o u t e i t h e r b y s u t u r e o r b y t h e u s e o f a b u t t o n f o r i n t e s t i n a l a n a s t o m o s i s T h i s m e t h o d h a s t h e d i s a d v a n t a g e t h a t i t l e a v e s b l i n d p o u c h e s i n w h i c h f e c e s m a y c o l l e c t A b u t t o n m a y b e u s e d a l s o i n t h e e n d - t o - s i d e a n a s t o m o s i s T h e h e a v y p o r t i o n o f t h e b u t t o n i s p l a c e d i n t h e e n d o f t h e c o l o n I n t h e e n d - t o - e n d a n a s t o m o s i s t h e t w o e n d s o f t h e b o w e l a r e j o i n e d b y d i r e c t s u t u r e t h e m u c o u s m e m b r a n e a n d t h e s e r o u s c o a t s b e i n g a p p o x i m a t e d w i t h s e p a r a t e s u t u r e s F o l l o w i n g r e s e c t i o n o f t h e b o w e l a n i l e o s t o m y i s m a d e a b o u t 30 c m a b o v e t h e a n a s t o m o s i s T h i s i s o p e n e d o n l y i n c a s e o f e m e r g e n c y

O n e h u n d r e d a n d f i f t y c a s e s o f r e s e c t i o n o f t h e r i g h t s i d e o f t h e c o l o n a r e r e p o r t e d f r o m t h e M a s s a c h u s e t t s G e n e r a l H o s p i t a l C l i n i c C o m p l e t e p o s t o p e r a t i v e d a t a w e r e o b t a i n a b l e i n 133 S i x t y t w o (47 p e r c e n t) o f t h e p a t i e n t s l i v e d m o r e t h a n t h r e e y e a r s a f t e r t h e o p e r a t i o n f i f t y s e v e n (43 p e r c e n t) a r e s t i l l a l i v e

A L T E R J S C H O L L M D

Chat n Five Ca es of Surgery of the Colon (Cinq  
b e r t n a d h i u g e d o l ) B i l i m m  
S c d h d P 19 3 1 432

I n t h e a u t h o r s t w e n t y t w o c a s s o f o n e s t a g e r e s e c t i o n o f t h e l a r g e i n t e s t i n e i n c l u d i n g t h e f i e r e p o r t e d i n t h i s a r t i c l e t h e r e w e r e f i v e d e a t h s a m o r t a l i t y o f 22 7 p e r c e n t T h e t w n t y t w o c a s e s i n c l u d e d e i g h t a b d o m i n o p e r i n a m p u t a t i o n s o f t h e c e c u m T h e f i v e c a s e s r e p o r t e d i n t h i s a r t i c l e i n c l u d e d f o u r o n e s t a g e r e s e c t i o n s o f t h e c o l o n a n d o n e i l e o s i g m o i d o s t o m y f o r i n o p e r a b l e c a n c e r o f t h e l e f t f l e x u r o f t h e c o l o n A l l o f t h e p a t i e n t s r e c o v e r e d f r o m t h e o p e r a t i o n

O k i n c z y c a t t r i b u t e s t h e a u t h o r s s u c c e s s i n t h e r a d i c a l o n e s t a g e r e s e c t i o n a n d s u t u r e l a r g e l y t o h i s m e t h o d o f i n t a a b d o m i n a l e t e r i o z a t i o n T h i s c o n s i s t s i n t h e w r a p p i n g o f t h e s u t u r e d a r e a w i t h i o d f r m g u z e s o t h a t t h e w o u n d i s b o u g h t d r e c t l y i n t o v e w T h e i o d o f o r m w i c k s a r e 5 c m i n l e n g t h a n d a r e d o u b l e d T w o l a r g e w i c k s a r e p l a c e d o n t h e s i d e s w i t h t h e i r l o w e r e d g e i n c o n t a c t w i t h t h e m e s e n t e r y C a e i s t e n n o t t o h e a p u p t h e e n d s n o t t o f o l d t h e m u p o n t h e m e s e n t e r y a s t h i s m i g h t m a k e t h e r r e m o v a l d i f f i c u l t T w o w i c k e d s a r e f a s t e n e d u p o n t h e s i d e s o f t h e o p e r a t i v e f i e l d T w o m o w i c k s a r e s i m i l a r l y d i s p o s e d o n t h e p r o x i m a l a n d d i s t a l e n d s o f t h e i n t e t i n e T h e e n d s o f t h e u p p e r w i c k a r e t h r u n u p a b o v e a n d b e l o w t h e o p e r a t i v e f i e l d T h e a b d o m i n a l w a l l i s c l o s e d a b o v e a n d b e l o w t h e w i c k s

pace of 5 cm being left at their level. Iushing, he drains apart exposes the line of suture which communicates directly with the exterior.

On the twelfth day the withdrawal of the wicks is begun by gentle traction. Removal requires several days and is frequently followed by a seropurulent leakage. The author has never caused disunion by traction during removal of the drains. In the absence of a fecal fistula the parietes close spontaneously without secondary suture.

In the author's opinion the iodoform wicks ward off primary infection prevent secondary breaking down and in case a fecal fistula develops will favor drainage to the exterior. WALTER C BURKET M.D.

Holmgren T. Changes in the Structure of the Intestine in Man Associated with the Formation of an Artificial Anus (Veränderungen in der Struktur des Menschen im Zusammenhang mit künstlich gelegten Verspraternaturalis) *A. J. A.* 1933 11:449.

This article reports the anatomical finding in a case of artificial anus which had been formed three and one half years previously in a 13 year-old patient and which opened with four intestinal lumina near the ileocecal valve. The four openings two of which did not discharge fecal smelling contents were formed by a coil of intestine inextricably bound by dense peritoneal adhesions. In an area about 4 cm in diameter the mucosa of the small intestine had a sume completely the characteristics of large intestine mucosa. The cell of Paneth were preserved. There was present also an extremely unusual development of numerous branched tubular and ampullar glands resembling duodenal glands. These lay within the tunica propria and deeper in the tela muscularis.

Many of the ducts showed sac like dilatations. The cells of the ducts resembled those of the surface epithelium of the stomach while those in the deeper portions of the ducts resembled the secreting cells of the epithelium of the stomach. Holmgren describes the nature of the secretion of these glands and the secretion itself. He comes to the conclusion that there was here an adaptation of the intestinal mucosa and that the described glands have the same function as the anal sweat gland. The surrounding skin had developed large anal sweat glands. However as the endometrial intestinal epithelium could not develop sweat glands these being exclusively ectodermal structures use was made of the submucous duodenal glands the type of gland which is most accessible to the intestine. GOEDEL (Z).

Sebek A. Retrocæcal Incarceration of a Retroperitoneal Hernia (Incarceration retrocæcal) *Rec. Chir. et Mal. Abdom.* 1933 1:269.

A retrocæcal incarceration due to a subserous tuberculous cæcal tumor is described briefly. The patient was completely cured following an ileocecal resection and a von Luschka anastomosis.

Kocir (Z)

Jennings J E. The Role of Bacillus Welchii in Gangrenous Appendicitis and the Use of the Antitoxin of Bull and Fitchett in Its Treatment. *J. R. M. J. & Med. Rec.* 1923 cx ii 682.

In appendicitis with localized spreading or general peritonitis cultures and a guinea pig inoculation should be made at the time of operation. The report of the results in the animal will be available in two hours and the culture will be available for verification in from twelve to twenty four hours. If the animal shows the presence of bacillus welchii an intravenous injection of from 100 to 200 c cm of perfringens serum should be given immediately. In certain cases of spreading peritonitis a smear from the peritoneal fluid will show the presence of encapsulated bacilli recognizable as bacillus welchii. In such cases a wait of even two hours before injection is unjustifiable.

After from twelve to twenty four hours another injection of 100 c cm should be given. The clinical response in cases showing a rapid pulse and cyanosis is well marked. The pulse becomes slower the cyanosis disappears and the patient's general condition becomes better. In active cases of diffuse peritonitis the serum should be administered in massive and repeated doses but never to take the place of surgical measures or to delay operation.

In conclusion the author states that the antitoxin may prove of value in cases of intestinal obstruction and as a prophylactic in gunshot wounds of the bowel and operations on the intestinal tract.

HOWARD A MCKNIGHT M.D.

Madagan J M. Chronic Appendicitis in Infancy (Apendicitis crónica en la infancia) *Rev. med. d. Ros.* 1933 xi 13.

The records of the Children's Hospital of Rosario show that 9 per cent of all operations are for chronic appendicitis. The end results of appendectomy for chronic appendicitis in children are excellent. There is marked improvement in the general condition the child gains weight and recovers its strength and color and in the cases of poorly developed children there is sometimes a marked increase in growth. Abdominal pain digestive disturbances vomiting and nausea cease entirely and an acute crisis which might be fatal is prevented. The author therefore concludes that appendectomy is definitely indicated in appendicitis in infants.

W A BRENNAN

Lower W E. and Jones T F. Surgery of the Appendix. *J. Am. M. A.* 1923 lx i 629.

The mortality rate of operations for acute appendicitis ranges from 3 to 6 per cent but the end results in patients who survive are almost uniformly good. On the other hand the percentage of cases of chronic appendicitis in which operation does not give relief is alarmingly high. In 226 cases reviewed by Deaver and Ravdin no relief was obtained in 7.07 per cent and only partial relief in 9.9 per cent. In 426

cases reviewed by Gibson no relief was obtained in 23.9 per cent and only partial relief in 15.2 per cent.

In the authors' opinion the high operative mortality in case of acute appendicitis and the postoperative morbidity in cases of chronic appendicitis are due in large measure to the common belief that in every case the only proper procedure is the removal of the appendix. Both the laity and the medical profession should realize that acute appendicitis with associated peritonitis is a systemic rather than a local disease. The morbidity after operation for chronic appendicitis is due usually to incorrect diagnosis.

In the acute cases the mortality will be greatly reduced by the application of the Ochsner treatment before operation, the Fowler position after operation, plus the Ochsner treatment plus the Alonzo Clarke treatment for peritonitis, plus the application of large hot packs over the abdomen, plus hypodermoclysis. In the operation the authors adhere to Crile's principle of confining the primary procedure to incision and drainage if the appendix is not readily accessible, the removal of the appendix and exploration being deferred until the acute stage is passed. In doubtful cases, especially in women and sometimes in children, they prefer an incision through the right linea semilunaris as offering the easiest approach for exploration of the lower abdomen.

Chronic appendicitis is difficult to diagnose as it is simulated by numerous other conditions. Among the latter are cholelithiasis, catarrhal jaundice, gastric ulcer, ovarian tumor, salpingitis, psoas abscess and pneumonia with abdominal pain.

Acute appendicitis occurs more frequently in men and chronic appendicitis more frequently in women.

The diagnosis of appendicitis in infants and small children may be aided by the induction of scopolamine morphine anesthesia when pressure on the appendix will elicit a muscle spasm.

In conclusion the authors state that in acute appendicitis more stress should be laid on the treatment of the associated peritonitis and less on the mere removal of the appendix.

WILLIAM A. HEWICKS, M.D.

#### Da lid V. C. Congenital Stricture of the Childen's Rectum

The author reports four cases of rectum: the first with a membrane opening, the second similar to the circular narrowing of the mucosa, the third with a sickle-shaped valve including the anterior two-thirds of the rectum and the fourth a case of imperforate anus, operated upon and left with a small middle of a scar running from the perineal crotch.

The author attributes such malformations to the prenatal membrane to separate the from the bladder completely or failure of the to meet and unite with the mesoderm.

1. Premature narrowing of the anorectal region without complete occlusion.

2. Complete occlusion of the anus by a simple membranous diaphragm or by integument.

3. Anus absent and rectum ending in a cul de sac above its normal outlet without any connection whatever either internal or external.

4. Anus normal externally but ending in a cul de sac and the rectum ending in a blind pouch above the sac being separated by a septum.

5. Anus absent and the rectum prolonged in the form of a fistula terminating in an abnormal anus at the glans penis, labia pudenda or any point about the perineum or scrotum.

6. Anus absent and the rectum terminating in the bladder, urethra or vagina or into a cloaca in the perineum with the urethra and vagina.

7. Anus and rectum normal but the ureters the vagina and uterus opening into the rectal cavity.

8. Rectum entirely absent.

9. Rectum and colon absent and the bowel possibly opening by an abnormal sinus in some unusual part of the body.

Premature narrowing of the anal region without complete occlusion occurs about 3 cm. from the anal opening. It may be valvular or tubular in form.

The valvular stricture consists of mucosa and submucosa and is due to incomplete union between the anus and rectum. It is just above the mucocutaneous level, soft and pliable and usually about 3 to 5 cm. thick. The mucosa of the rectum below the diaphragm is normal rather than leather-like and indurated as in inflammatory strictures of the rectum.

Congenital strictures of the rectum which are cylindrical or tubular are due to failure of development of the proctodeum or the descending pouch of the rectum. They are usually 3 cm. in length and have rigid walls including all of the layers of the bowel.

HOUGHTON, M.D.

with forceps. At about the level of the promontory and beginning at the side interrupted silk sutures were placed which at the highest possible level included the peritoneum and the bladder or uterine wall on the one side and the peritoneum and the wall of the flexure on the other. Small needles were used. All of the sutures were inserted before tying was done. Three centimeters lower another suture was placed and a third at the edge of the peritoneum. In this manner the pouch of Douglas was closed off, the hernial sac obliterated and the pelvic colon fastened as far as the promontory to the posterior wall of the bladder or uterus. In conclusion muscle flaps were formed on both sides from the gluteus maximus with their bases toward the sacrum and fixed to the lateral and anterior surfaces of the rectum. On the posterior side of the rectum both muscle flaps were sutured at the level of the sphincter. Drainage was established through the defects formed by the removal of the muscle flaps. Finally a circular suture of thick catgut was placed subcutaneously about the anus.

Morphine was given for five days. The after treatment included irradiation of the perineal region to strengthen the sphincter.

The author believed that up to the time of his operation obliteration of the pouch of Douglas had been done only by laparotomy. However he discovered that the sacral route had been tried on the cadaver by Duval and Lenormant. Napalkov proceeded by the perineal route but with very unfavorable results (rupture of the uterus, injury of the rectum).

In the use of the parasacral route the danger of injuring the vascular nerves is entirely absent but in the performance of a muscle plastic by the perineal route such injury may occur very easily in spite of all precaution. Crossing of the muscle flaps around the rectum is not recommended because of the danger of stenosis. Rectopexy, insufficient Colopexy diminishes the depth of the peritoneal funnel and may therefore have good results, especially an anastomosis between the highly elevated pelvic colon and the descending colon according to the method of Friedrich has the prospect of permanent results because the entire intestine hangs from the firmly fixed splenic flexure. However it is then best to resect the entire sigmoid flexure in order to prevent obstruction and the formation of fecal masses.

Kuennell fixed the pelvic colon by three silk sutures to the anterior surface of the sacrum or the anterior longitudinal ligament of the spinal column. There was no recurrence. However following this procedure there is danger that the sigmoid colon may become kinked thus causing severe constipation.

The author mentions as an advantage of his method particularly as compared with Kuennell's that it can be carried out under light parasacral conduction anesthesia. Therefore advanced age is not a contra-indication. Another advantage is that the peritoneum is opened only to a small extent.

SCHUEMANN (2)

## Landsman A A Bleeding from the Rectum

*Arch. Pediat.* 1913 1 53

Rectal bleeding may arise from a variety of causes local and general but this discussion is limited to cases of rectal hemorrhage in children which is traceable to disease of the lower portion of the large intestine.

Loss of blood from the rectum is not infrequent in adults but is less common in children and rare in infants since persons of different ages are unequally exposed to factors favoring the development of rectal diseases associated with bleeding. Important predisposing causes in adult life are hard work, worry, chronic constipation, sexual excesses, pregnancy, alcohol, syphilis, malignancy and degenerative diseases. In childhood and infancy most of these are absent. The food of the infant is another cause of relative immunity in early life as milk makes a minimum demand upon the organs and leaves a residue which is not apt to traumatize the parts.

Steady bleeding even in small quantities is certain to be followed by serious consequences. In order to give more than temporary relief the cause must be found.

Of the disturbances responsible for rectal bleeding in older children only two require particular consideration in the cases of infants viz congenital syphilis and lesions arising from developmental faults such as faulty union between the proctodeum and the hind gut.

Older children may have the diseases which affect the younger but usually other conditions such as polyp, prolapse of the rectum, invagination of the bowel, ulceration, fissure, foreign body and abscess are the causes of the bleeding.

The rectal polyp occurring in childhood is usually the benign adenoma, single, pedunculated and implanted low down. This may give rise to serious bleeding.

Prolapse of the rectum is relatively common in children up to 4 or 5 years of age and is accompanied by slight bleeding during or after defecation. It is not a true prolapse but a protrusion of mucous membrane loosened by increased intra-abdominal pressure in chronic constipation, whooping cough, diarrhoeal diseases or some other condition with excessive straining. True prolapse is an invagination of one part of the rectum into another part and in children is an acute affection characterized by the signs of intestinal obstruction, shock and bleeding from the bowel.

Ulceration of the rectum is caused by syphilis, tuberculosis, malignancy, amebiasis, intestinal parasites, gonorrhoea and proctitis due to toxins. Any one of these conditions may cause varying degrees of bleeding. Syphilitic and tuberculous ulcers and malignancy are rare in children. Amebiasis is infrequent in cold and temperate climates but parasites especially thread worms, round worms and tapeworms are not uncommon. Gonorrhoeal ulcers occur most frequently in female children.







complications of gangrenous or perforative type with more or less circumscribed peritonitis the operative indication is all the more clear.

The mortality of operation in uncomplicated cases is nil and in cases of circumscribed complications does not exceed 4 per cent. It becomes high only when the complications have been permitted to advance.

W. A. BEECHER.

**Holtz: Result of Gall Stone Surgery (Friedrichs)**  
 C. L. T. Schurk, 41 mm. d. d. t. h.  
 G. H. K. Ch. 221

In 1000 cases operated upon for the removal of gall stones there was a recurrence in 3 per cent. Recurrent cholecystitis caused chiefly by past contractions of the duodenum due to the underlying disease and not to the peritonitis following ligation and gastro-intestinal complications are due to neglected calculus and speak more in favor of than against early operation. Further recurrences especially to the nature of pericholecystitis, ileus, stasis, a duodenal condition, primary cholangitis, pancreatitis, etc., and the relationship of catarrh, icterus, to duodenitis. In the cases reviewed the mortality of operations performed during the attack was double that of operations performed during a remission. The mortality according to age was as follows:

Age Years	Per	Age	Per
1	75	46-5	9.5%
1-25	3.9	5-55	3.41
26-30	3.9	56-60	.09
31-35	4	61-65	2.11
36-40	6	66-70	7.0%
41-45	1	71-75	35.43

In 1153 operations there were 1052 deaths, a mortality of 9.12 per cent. One fourth of the deaths were due to peritonitis. In order to prevent this complication the operation should be performed during a remission. The technique should consist in a subserous enucleation of the gall bladder with attention to the possible presence of aberrant bile ducts. If removal of the gall bladder is very difficult cholecystostomy should be performed instead of cholecystectomy. Free drainage should be established.

Other deaths in the cases reviewed were due to postoperative insufficiency of vital organs resulting from long continued infection and old age.

It is evident from these statistics that the results of operation are best between the ages of 20 and 40 years (average mortality 4 per cent) that operation should be performed if possible during a remission and with very careful technique and that in old age it should be performed only when imperatively necessary.

STETTINER (Z).

**W. Izel: The Treatment of Stones in the Common Duct (Z. R. Th. Rap. des Ch. Loc. U. S.)**  
 D. M. L. H. G. H. K. Ch. 193

The author recommends primarily suture of the common duct with stretching of the papilla. It is

possible to stretch the papilla so that it will pass even a No. 24 Charnière catheter. In twenty-five cases treated in this manner there was only one death. The fear that tears will result which will lead later to stenosis is unfounded. In some of the author's cases a rubber tube was inserted. In three this was passed by rectum in from six to fourteen days in one case it was not passed but caused no trouble. Absorbible drains may be employed.

In the discussion of this paper ALPHE also advocated stretching of the papilla.

TIETZE states that in the parenchyma of the liver in cases of gall bladder disease he had fundamental changes ranging from moderate collections of leucocytes in the biliary passages to acute yellow atrophy of the liver. In his patients died from hepatic insufficiency. The chief cause of the changes is the infection. Therefore cholecystectomy must be followed by careful after treatment.

HOLMBAUM called attention to the difficulties encountered in secondary operations on the common hepatic ducts. He believes that in such cases the liver and duodenum should be sutured so that the lumen of the opened biliary passage will communicate with the duodenum.

CORNET urged early operation. He believes that the factors chiefly responsible for the symptoms are the stasis and the inflammation rather than the stones.

VON HABERER showed a rare specimen consisting of a gall bladder divided by a septum and having two outlets.

BRACEY located the median incision and gave if necessary can be established through a lower opening. For the induction of anesthesia in his cases an injection of copalume morphine is given. The edges of the skin incision are infiltrated and plain chloroform anesthesia is used after opening of the abdomen. Of 173 operations ninety-three were performed under local anesthesia. For the prevention of hemorrhage in chronic occlusion of the common duct he recommended the prophylactic transfusion of 200 ccm. of citrated blood.

ROEPKE called attention to a clinical picture which is easily confused with that of gall stone disease, namely purulent fibrinous peritonitis. He found this condition in six of 107 cases of gall bladder disease. The focus lay on the anterior surface of the liver under the arch of the ribs and may be easily overlooked. As a rule in such cases Roepke removes the gall bladder. In the after treatment lathermy was found valuable.

ROSTEDT stated that he doubted the value of treating acute yellow atrophy of the liver by draining the biliary passages. He called attention to the fact that many conditions are erroneously diagnosed as acute yellow atrophy. In this connection he reported a case of chronic icterus associated with duodenal ulcer in which acute yellow atrophy of the liver was suggested by the findings. Finally exploratory excision but after choledochoduodenostomy the icterus disappeared.





# GYNECOLOGY

## UTERUS

Comblat Y Mur rd J and Chifol at A Report on Eight Cases of Genital Prolapse Treated by Partial Colpocleisis (Le cl son eme t du n mm t t m nt des p laps gé t u hu t b t ) Bull et me i S c d ch de Par 9 3 1 716

Chifolau reports on eight cases of prolapse of the uterus treated by Comblat and Murard. Point in the operative technique emphasized are (1) the stretching of the two raw surfaces to be approximated and (2) the suturing of the raw surfaces.

The stretching is extended almost the entire depth of the vaginal wall beginning from a line just below the external os. This is done by pushing the cervix as high as possible with a clamp. In this position the two points corresponding to the two extremities of the superior transverse line of incision are marked. The same procedure is applied to the inferior limit. In width the zone of denudation occupies almost the entire vaginal wall.

In the suturing of the edges of the raw surfaces great care is taken not to leave any dead space.

The operation is done under local anesthesia. Of the four women operated upon in this manner in 1912 one died after nine years but the operative result was good. One patient has not been seen since. Two have been well for over ten years. The results were satisfactory also in the other four thirds of whom were operated upon in 1911 and one in 1912.

SALVATORE DI PALMA M.D.

Ge nez M P tial Colpocleisis as a Method of Treating Genital Prolapses (L l n m nt du az n mme t a tem t d p l psu gé t au ) Bull t t S d cl de P 9 3 1 739

Partial colpocleisis for the correction of genital prolapse was performed by the modified Lefort technique on two patients one 6 years old and the other 69. The advantages of this method are:

- 1 The harmlessness of the local anesthesia.
- 2 Operative simplicity pursestring sutures obliterating all dead spaces.
- 3 Excellent results.

The author's patients had senile atrophy of the uterus with almost entire absence of cervical secretion.

SALVATORE DI PALMA M.D.

Forsdik S The Treatment of Senile Uterine Hemorrhage by Radium (B t M J 9 3 1 149)

M tindle I Menorrhagia Treated by Internal Radium Therapy (B t M J 9 3 4)

FORSDIK states that functional uterine hemorrhage is relieved by radium because of changes pro-

duced in the endometrium rather than because of effects produced in the ovaries. To date he has treated sixteen cases. All of them were severe and forty-three had been subjected to some type of operation, the majority a dilatation and curettage. The radium was applied within the uterus following a preliminary curettage. The youngest patient was 18 years of age and the oldest 55 years. There were so few when first seen that they were brought in for treatment in an ambulance. Fifty milligrams of radium placed in the uterus for twenty-four hours established amenorrhoea. The sole contraindication is pelvic peritonitis. Radium produces a menopause without the symptoms usually attributable to the natural menopause.

MARTINDALE reports that he has obtained encouraging results in numerous cases of menorrhagia from the use of intensive X-rays. He lays special stress upon the importance of accurate measurement of the dosage.

HARRY W. FINE, M.D.

Savariaud and Debras Inoperable Epithelioma of the Neck of the Uterus. Curettage and Radium Treatment. A Cure for More Than Ten Years (Etiologia de l'utérus opérable t tag trad m g sond p l d ans ) Bull t t m Soc de cl de P 19 3 1 43

The authors report the case of a woman with cancer of the uterine cervix and the upper part of the vagina who was treated by them eleven years ago. As the entire cervix had been destroyed and radical operation was impossible, only curettage was done. In the resulting cavity were placed 60 m.m. of radium bromide in six capsules of 1 mm. platinum filtered by 1 mm. of silver and 1 cm. of gauze. The first application which lasted for forty-eight hours was followed eight days later by the same dosage for twenty-four hours. Two months later a third treatment with the first quantity was given. As at this time almost the entire vagina was found epitheliomatous the treatment was discontinued. The patient has been in good health ever since.

In another apparently hopeless case the same treatment was followed by good health for four years but a recurrence then developed in the lymphatic glands.

KUDOLF MARX, M.D.

## ADNEAL AND PERI UTERINE CONDITIONS

Allen E. and Dolsy E. A. An Ovarian Hormone. A Preliminary Report on Its Localization, Extinction and Partial Purification and Action in Test Animal (J i M s 9 3 1 1 89)

During the anabolic phase of the estrual cycle in the rat and mouse the epithelium of the vagina grows to a considerable thickness and a cornified layer simi-

lar to that in the epidermis develops. During the catabolic phase the outer layers of this epithelium degenerate and are removed by leucocytic action. Microscopic examination of vaginal smears is a reliable method of determining the estrual condition of the living animal.

Since these cyclic phenomena in the genital tract cease after double ovariectomy, the induction by the injection of ovarian extracts constitutes a positive test for the efficiency of such extracts.

The authors' experiments were carried out with liquor folliculi from hog ovaries containing follicles larger than 5 mm in diameter. The follicular contents (liquor folliculi) follicle cells and occasional ova were aspirated through a hypodermic needle into a suction bottle.

In the first series of experiments nine mice and rats were prepared for use as test animals by double ovariectomy and a week later were given at intervals of five hours three injections of the aspirated liquor folliculi. The injections were made subcutaneously in the belief that the resultant slow absorption would be more closely comparable to the secretion of the hormone in normal animals.

From forty to forty-eight hours after the first injection all of the animals receiving liquor folliculi were in full estrus as determined by microscopic examination of the smears and by histologic examination of the uterus and vagina after the animals had been killed.

Tests with the centrifuged liquor and Berkefeldt filtrate showed that the hormone is extracellular and present in the liquor folliculi.

As liquor folliculi with its large protein content would be unsuitable for continued injections into patients, a test animal the extract is now prepared as follows:

Fresh liquor folliculi is added to a double volume of 95 per cent alcohol and allowed to stand until the protein is coagulated. The coagulum is then filtered off. The filtrate which is practically protein free contains the active constituent. Further extraction of the coagulated protein with boiling alcohol yields an additional amount of the hormone. The alcohol is distilled off and the residual aqueous suspension extracted with ether. The ether extract is evaporated and the solids are dried in a vacuum desiccator. The residue is dissolved in a minimal quantity of ether and a double quantity of acetone is added. To speed completion of the separation the solution and precipitation are repeated twice. The combined filtrates are then evaporated and the residue is dried. By boiling out the solid material with 95 per cent alcohol the active substance is obtained free from protein but contaminated with a little fatty material. The alcohol is evaporated off and the minutely residue taken up in purified corn oil or mullein distillate sodium carbonate.

Further animal experiments having confirmed their earlier findings the authors make the following preliminary announcement concerning the follicular hormone and its action:

1 From one to three injections of this extract into spayed animals causes typical estrual hyperemia growth and hypersecretion in the genital tract and growth in the mammary glands. These changes include thickening and cornification in the vaginal walls a change easily followed in the living animal. After a time the effect of the injections wears off and typical degenerative changes set in. The hormone seems to be an efficient substitute for the endocrine function of the ovaries of the non-pregnant animal. It is probable that its alternate presence and absence in the circulation is sufficient to explain the mechanism of estrual phenomena in the genital tract in the absence of pregnancy.

2 While the spayed animals so treated are in a condition of artificially induced estrus they can be mated with normal vigorous males. They experience typical mating instincts successful copulation occurs and as in normal animal is followed by the formation of typical vaginal plugs. Since these animals will copulate only when in estrus the conclusion seems justified that the follicular hormone under discussion is the cause of estrual or mating instincts.

3 When several injections of active extracts were made into animals immediately after weaning between the ages of 3 and 4 weeks they became sexually mature in from two to four days at least twenty to forty days before the usual time of puberty. Uninjected litter sisters did not attain to puberty prematurely. From these experiments it is concluded that the attainment of sexual maturity involving possibly the development of the secondary sexual characters is brought about by a hormone from the follicles although the consummation of the maturation is in some way restrained.

4 To date only negative results have been obtained from extracts of corpora lutea made in the experimental laboratory and from commercial extracts of ovaries corpora lutea and ovarian residue made by three of the largest firms manufacturing biological products.

5 It is probable that the hormone under discussion is produced under the influence of mature gonads by their follicle cell. Since it is obtained from the ovaries of hogs and cattle and gives results in the mouse and rat it is not species specific. It is probably produced in all ovaries as their ovaries mature and therefore is probably common to all female animals.

CARL H. DAVIS, M.D.

Ramon y Cajal. On the Genital Development of Dermoid Cysts of the Ovary (Algunos datos sobre el desarrollo de los quistes dermoides del ovario). *Cienc. y Let.* 93: 32.

The author reports a tubal pregnancy in a 36-year-old woman which was complicated by a dermoid cyst of the ovary somewhat smaller than a fetal head at term. The lower pole of the cyst extended to the sacral cavity and its upper pole joined the posterior part of the tubal tumor. It was a typical dermoid not containing any ovarian tissue. Its contents consisted of skeletal residue enclosed in

a thick membranous covering there was no macroscopic or microscopic evidence to indicate residue of dental origin such as is usually found in formations of this kind. Microscopically the dermoid elements of the cyst were similar to those usually observed in such tumors. Like most others the cyst was formed by greatly altered cephalic residue i.e. from the cranium mandible etc.

In discussing the genesis of dermoid cysts of the ovary (which gynecologists in general believe is different from that of dermoid cysts elsewhere) Ramon y Cajal suggests that the generative factor in these singular formations is a deviation from the typical development of the embryonic tissues some of the embryonic cells becoming separated developing independently and forming a rudimentary embryo.

W A BRENNAN

Bourne A W Bonney V Bell W B and Phillips L Discussion on the Treatment of Acute Salpingitis *B I M J* 1923 399

BOURNE states that the treatment of salpingitis is surgical and the best time to arrest the inflammatory process is in its early stages. During the past few years he has been able to trace eleven patients upon whom he operated for acute suppurative salpingitis within a few days of the first onset of pain. All of them were in good condition. He describes his technique as follows:

At laparotomy the tube is slit up as far as possible along the border opposite its mesenteric attachment the pus is very gently swabbed away and the mucous membrane is carefully inspected. If the tube appears intact and is free from gross areas of ulceration it is left *in situ* without any further treatment beyond the introduction of a few sutures of fine catgut to fix the mucocutaneous surfaces where arterial bleeding occurs. If the tube is found to contain gray patches of ulceration and gangrene its functional recovery is impossible and it is therefore removed. Cysts of the ovary are removed to prevent the formation of ovarian abscesses. A drainage tube is then placed at the bottom of the pouch of Douglas and the abdomen is closed.

In discussing this treatment Bourne states that the laying open of the tube establishes proper drainage which favors resolution of the inflammation and prevents the permanent changes which would result from the continuation of the inflammation. Preg-

nancy has been known to follow salpingostomy upon a tube in a state of chronic inflammation and it is reasonable to assume that good function might follow the operation performed in the presence of acute inflammation.

BONNEY also advocates early operation in all cases of salpingitis. In the twenty years in which he has been operating early he has never lost a case. Early operation always has the advantage over expectant treatment in that it conserves the ovaries. Spontaneous cure of a pyosalpinx or an ovarian or pelvic abscess is usually effected through adhesion of the mass to the pelvic colon and the discharge of the pus into the bowel.

BELL states that in his opinion salpingostomy will fail in a number of cases because of involvement of the interstitial portion of the tube.

PHILLIPS reports that he has had considerable experience in the reconstruction of the fallopian tubes the operations including salpingostomy partial salpingectomy resection and anastomosis and incision and resuture after canalization. His technique for salpingostomy is as follows:

The cervical canal is dilated and a sterile swab is placed against the cervix. The abdomen is then opened and after the contents of the tube have been milked out air is injected by means of a large syringe to expand the tube and expose any kinks. This having been done 20 c cm of a 1:1000 flavine solution are forced through the tube so that when the cervical plug is removed an orange stain will indicate tubal patency. The same procedure is then repeated on the other tube with the use of 1 per cent violet green as the indicator.

The free margins of the tubes are slit for about 1/4 in and the cut edges oversewn with a continuous buttonhole stitch of No. 00 catgut on a very fine needle. Finally the round ligaments are shortened. If the ostial end of the tube is torn so that it cannot be reconstructed it is removed and a new opening is made at the free end of the tube. If a definite obstruction is encountered when the tube is distended with air or is threaded over a needle the affected portion is excised and the cut ends are reunited. In some cases the stenosed region is incised longitudinally and sewed up transversely.

Of twenty women subjected to reconstructive operations on the fallopian tubes five subsequently became pregnant.

HARRY W LINK M.D.



tuberculous mother who were removed to healthful surroundings only one developed tuberculosis. From this it would appear that the prime factor in the transmission of the disease to the infant is in contact with the mother after birth.

With regard to the influence of gestation on the course of pulmonary tuberculosis, the authors state that in the aggravation of the pulmonary lesion in a healthful environment, excessive work and the pathological phenomena directly due to gestation such as hyperemesis gravidarum may play a part. Bar attribute such change to the decalcification process caused by the demand of the fetus. Stern, Bar, and Drvan have shown that even in the absence of clinical evidence of tuberculosis the pregnant woman may show a marked diminution in the cutaneous reaction to tuberculin, that the reaction is weak in the majority of cases and in a few it is totally absent. Couland attributes this reduction to hypofunction of the thyroid glands, and Barodin believes it is due to a decrease in liver function. From Geeraert's statistics it is evident that gestation has a relatively slight untoward influence on tuberculous lesions of the mild or the mildified type but that in cases with more advanced pulmonary tuberculosis, shown a tendency to progress and in those in which the disease is manifested clinically, following delivery it has a markedly unfavorable influence upon the prognosis.

With regard to the treatment of the tuberculous gravid woman, the authors tabulate the end results obtained by a large number of German, Italian, and French obstetricians who advocate therapeutic abortion. They themselves however prefer medical treatment, the patient being kept under close observation by both the obstetrician and the internist. In cases with advanced and incurable lung lesions the aim is to prolong the life of the mother in order to give the unborn child the maximum chance for life. Abortion is to be advocated they believe only in the occasional case. The use of artificial pneumothorax in the treatment of the pregnant woman has not been generally successful but in a few instances there has been a favorable response.

In conclusion the authors state that if a woman with an active pulmonary lesion is permitted to nurse her infant she runs the risk of aggravating her own condition and jeopardizing the life of the child.

JAMIE V. R. M.D.

**Bermann S. E. A Tubo Abdominal Ectopic Uterine Pregnancy of Nine Months** (Γ β ο τ τ ι δ ι μ ο τ β β δ ο μ α λ) S m m d 93 1008

Bermann gives the clinical history of a case of tubo abdominal pregnancy which reached term. The patient was then seized with sudden pain and exhibited symptoms suggestive of internal hemorrhage with peritonitis. At laparotomy a cystic tumor containing a living fetus was found. The uterus was the size of a kidney and fibrous. The cystic tumor formed part of the left tube. The fetus weighed

about 3 kilos and was 50 cm long. It lived for two hours. There were two distinct placentae in the fetal sac; the umbilical cord was inserted in one. The hemorrhage was due to the rupture of vessels in the fetal sac. The woman made a good recovery.

According to Bermann this is the sixth case of extra uterine pregnancy reaching term which has been reported in the Argentine literature.

W. A. BRENNAN

**Henrotay J. L. Ectopic Gestation of Over Four Months** (Gravida ectopica ultra duatrimense m 1) G r i f t s t 93 1507

A patient 23 years old was admitted to the hospital September 26, 1922. Her last normal menstruation occurred in May 1922. In the surgical ward a diagnosis of pregnancy was made and she was sent home. Shortly after her discharge she was readmitted with a temperature of 38.4 degrees C and a pulse of 120. On account of unsymmetrical enlargement of the abdomen by a mass a diagnosis of tuberculous peritonitis complicating pregnancy was made. On further examination the uterus was found empty and displaced to the right. Subsequently the right foot became edematous.

Laparotomy disclosed an adherent mass the size of a large fist consisting of the right adnexa. During its removal the mass broke and a foetid faecaloid fluid escaped exposing a cavity containing a putrified fetus, umbilical cord and placenta. Following its removal a Mikulicz drain was inserted. On the third day after the operation a faecal fistula developed. This finally healed and the patient was discharged cured.

On the basis of its size and the centers of ossification of different bones shown by the X-ray, the author concludes that the age of the fetus was between four and five months. As no damage was done to the intestines in the removal of the mass he believes the faecal fistula was the result of erosion of the intestine by the chorionic villi with subsequent infection of the fetal sac.

SALVATORE DI PALMA M.D.

## LABOR AND ITS COMPLICATIONS

**Manna A. Clinical Studies of a New Analgesic in Obstetrical and Gynecological Practice** (St di 1 n su un nuov l s nella p at ca o tetr c e g n logia) A b d o t e t g c 79 3 145

Maratrik composed of 1 cgm of hydrochlorate of morphine 2 mgm of neutral sulphate of atropine and 15 cgm of sedasina gualdoni, the latter a synthetic product (benzoic ether of dimethyl amino propanol) was used in seventeen obstetrical and three gynecological cases.

The youngest subject was 18 years of age and the oldest 40. All of them were in good general health and free from adnexal disease. In the obstetrical cases the pelvic measurements were normal. The injection of one ampoule of the preparation was



given in the region of the ischial tuberosity as near the pudendal nerve as possible

Only one injection was given except in two cases in which a second was necessary because the effect of the first injection had practically ceased at the end of half an hour. As a rule the dilatation of the cervix at the time of the injection was at least 5 to 6 cm. and in one case it was almost at the beginning of fetal expulsion.

The analgesia was complete or at least the pain of the uterine contraction was rendered bearable. The sensation of ringing analgesia were pressure on the abdomen or pressure on the uterine fundus and tightening around the body. These are not painful. The duration of the uterine contractions as decreased and the interval between them increased. General phenomena were a light headache and somnolence of brief duration.

The time between the injection and beginning of analgesia varied from ten to twenty minutes. The duration of the delivery, as from eight to thirty-six hours in the case of primiparae and from five to twelve hours in the cases of multiparae. The effect on the fetus was practically nil. The puerperium was normal. Retention of the placenta and haemorrhage in artificial delivery occurred in only one case.

The analgesia was satisfactory also in the three gynecological cases—dilatation and curettage and cervical plasticity. SAL TORRE, I. P. M. M.D.

**Chinisse I. The Symptomatology and Treatment of Eclampsia Based on Its Pathogenesis (Ishihara Hideo, Tokyo, 1923, 112 pp.)**

The author first reviews the various theories of eclampsia in 1893. The theory most generally accepted at that time attributed the condition to the presence in the blood of a toxin formed in the placenta. During the last quarter of a century the theories advanced have been numerous but the specific cause of the phenomenon remains unknown. In Germany certain investigators have advocated amputation of the breasts to relieve the condition others recommend craniotriphination and others extirpation of the corpus luteum.

Selheim concluded from rather scant experimental data that the toxic substance in eclampsia is elaborated by the mammary gland. He therefore injected potassium iodide into the breasts of two eclamptic women and excised the glands of another. A cure resulted.

Zangmeister who is one of those advocating trephination believes that eclampsia is due to derangement of the tissues in general and of the kidneys and cerebrum in particular resulting from injury of the capillaries and consequent increase in intracranial pressure and the blood pressure. He claims that the true state of eclampsia is produced by a gradually developing cerebral anoxemia and that the convulsions are clinical manifestations of this cerebral hypertension and cortical anoxemia. However, the fact that convulsions develop suddenly without premonitory symptoms tends to refute this view.

Vollard Hinshman and others believe that an exaggerated angiospasm accounts for the edema and ichthemia of the cortical areas.

Hofbauer claims that the eclamptic syndrome is due to hyperactivity of the hypophysis and suprarenals and that the convulsions relieve the cerebral vascular spasms due to vasoconstrictor hormones. He believes that the hypophysis plays the important rôle in eclampsia through its influence on the circulation of the brain, liver, kidneys and skin. On the basis of this assumption and the antagonistic action between the hypophysis and the suprarenals on the one hand and the ovary on the other he recommends the administration of corpus luteum which supposedly lowers the blood pressure and has a selective dilating action on the cerebral vessels. Westermarck on the other hand recommends extirpation of the corpus luteum. JAMES V. RICE, M.D.

## PUERPERIUM AND ITS COMPLICATIONS

**Soll, I. S. Suppurative Arthritis of the Symphysis Pubis During the Puerperium (Arthritis suppurativa pubis in puerperio). Pol. 1. R. M. 9. 3. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.**

The condition discussed in this article is extremely rare and little mention is made of it in the textbooks. Soll reports two cases in detail. The first was that of a multipara 26 years old. Intense pain in the lower abdomen radiating to the external genitalia and thighs began the first day after delivery and became progressively worse. Active flexion of the thighs was impossible and passive flexion increased the severity of the pain. Palpation revealed extreme tenderness in the symphysis pubis. A diagnosis of acute suppurative arthritis of the symphysis pubis was made. The treatment consisted first in the intramuscular injection of colloidal silver to combat general infection and the application of ice to the pubic region. Later a pubic and suprapubic incision was made and a large amount of creamy yellowish green pus was evacuated from the space of Petzvi. On exploration the symphyseal articulation was found to be open along its entire extent. Its bony surfaces were bare and rough.

In the second case that of a multipara aged 28 years the symptoms were very similar to those in the first. After treatment with injections of colloidal silver a large quantity of thick yellowish pus was evacuated by bilateral incision of the labia majora and minor. The condition of the symphysis pubis was the same as in the previous case. The space of Petzvi was drained. Cultures from the pus yielded the taphylocooccus aureus.

In conclusion the author discusses the differential diagnosis of suppurative arthritis of the symphysis pubis. The surgical evacuation of the pus may be done by the high or hypogastric route or through the interlabial sulcus of the vulva. The choice of the route must depend upon whether the purulent collection is more evident toward the hypogastrium or toward the external genitalia. W. A. BRENNAN

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Hoffelder H and Pelper P The Sensitivity of the Adrenals to Irradiation and Methods of Preventing Adrenal Injury During Deep Roentgen Ray Therapy (Die Strahlenempfindlichkeit der Nieren und Wege der Verhütung von Nebenwirkungen bei der Röntgenbehandlung der Nieren) St hle th p 93 xv 1

The authors observed two cases in which following deep irradiation in the region of the pancreas and adrenals great weakness and depression supervened and in the next few weeks a brownish discoloration of the skin appeared which persisted for two months. They attribute these effects and the roentgen malaise which comes on so frequently following irradiation of the gastric region to a transitory injury to the adrenal.

Following these observations the authors investigated the effects of irradiation on guinea pigs. The normal adrenals of these animals show a constant change in the structure of the cortex. Pregnancy is associated with hypertrophy, an enormous increase of karyokinesis in the narrow outer layer of the cortex (zona glomerulosa), intracellular vacuole formation in the lipid containing middle layer (zona fasciculata) and marked pigmentation and cell destruction in the innermost layer (zona reticularis) which in young animals is poor in pigment or lacks it entirely. In the experimental animals an area on the back at the level of the tenth and eleventh ribs 3 cm wide was irradiated through a 1/4 mm zinc filter at a skin distance of 30 cm. Complete loss of hair did not occur in the irradiated area nor macroscopic nor microscopic changes in the irradiated loops of intestine. Of seven animals one died on the fourth day after the irradiation of two intersecting fields with a calculated dose of 180 per cent. Autopsy showed no changes in the skin, intestines or adrenals. The authors attribute the death to a toxic effect upon the adrenals which had not reached the stage of anatomical change.

Another animal which was given a dosage of about 90 per cent died after twenty-one days during which time it became progressively weaker. In this case there was an extraordinary loss of lipid in the entire cortex similar to that observed by Peeper in experimental scorbutus in guinea pigs.

In three animals given doses of 120, 75, and 60 per cent respectively extra attention of blood extension, cell degeneration and marked absence of lipid in the zona fasciculata and reticularis were found after from ten to ten weeks. In one of them marked pigmentation in the reticularis was present in addition.

In two animals given doses of 110 and 60 per cent respectively there were less marked changes consist-

ing of degenerative vacuole formation in the cell nuclei in the fasciculata, extravasation of blood and an increase of pigmentation in the reticularis and a slight decrease of lipid. The adrenal medulla was entirely unaffected. In one case 60 per cent of the erythema dose caused irreparable injury of the adrenals.

From these studies the authors conclude that in clinical cases the dosage in the region of the adrenals should never exceed half the dosage tolerated by the intestines. For cases of carcinoma of the stomach they recommend that the axis of the cone of rays be directed in a plane extending obliquely through the body from before upward and backward in order that the adrenals will be protected as much as possible from direct irradiation. Hirtz (Z)

Rehn E The Diagnosis of Kidney Function in Surgery (Funktionelle Nierendiagnostik in der Chirurgie) 47 Ves ml d d tsch Gesll ch f Cl r 1923

The method worked out by Redner from animal experimentation and clinical observations consists of the determination of the acid and the alkali excretion. To determine the acid excretion 20 drops of hydrochloric acid in 30 c cm of water are given in the morning before food is taken. For the alkali test an intravenous injection of 50 c cm of 4 per cent sodium bicarbonate solution is given. Five types of reaction can be distinguished:

- 1 Acid excretion normal alkali excretion normal (irritation of the kidney)
  - 2 Acid excretion normal alkali excretion impaired. After the administration of sodium bicarbonate the acid values approach the neutral point (nephralgia spasm)
  - 3a Acid excretion impaired alkali excretion normal (pyelitis)
  - 3b Acid excretion impaired alkali excretion normal (pyonephrosis)
  - 4 Acid excretion impaired alkali excretion impaired acid values approximate neutral (renal tuberculosis)
  - 5 Acid excretion impaired alkali excretion negative renal stasis (grave pyelonephritis)
- A comparison with the functional tests used to date favors the new test. With larger experience it will be of some importance in the differential diagnosis of renal diseases. STETTNER (Z)

Gospedal A M An Enormous Hydronephrosis Which Simulated an Ovarian Cyst (Hidronefrosis enorme que parecia u quiste del ovario) Cl y lab 923 1 4

The patient was a 40-year old woman with a tumor in the left side of the abdomen extending



ROSE pointed out the much more frequent involvement of the upper pole of the kidney due to the pressure of the eleventh and twelfth ribs

CASPER stated that he performed an extirpation in 170 of 700 cases of renal tuberculosis and that the mortality in the last seventy was only 2 per cent. Most of the patients not operated upon succumbed. In cases in which because of marked contraction of the bladder catheterization of the ureters is impossible the secretion of each kidney may be collected separately by exposing the kidney and clamping off the ureter

ROTHSCHILD stated that the conception of early operation is relative and that it is necessary to arrive at a definite understanding regarding it. He warned against always regarding the nodule mentioned by Huebner as due to tuberculosis as they may be found also in normal bladders

MAU brought up the point that in the subcutaneous tuberculin test the onset of pain is not to be interpreted as a positive reaction

HOFMEISTER advocated removal of the kidney following a diagnosis of renal tuberculosis even though the closed off buried foci are not found

HILLMAN reported a case in which uncontrollable bleeding was the first symptom

KUEMMEL urged the establishment of the diagnosis before exposure of the kidney. Tuberculosis of the bladder is often cured by nephrectomy and in many cases the internal administration of potassium iodide and local treatment with phenol solution iodoform etc give relief. General treatment for tuberculo is and injections of tuberculin are also indicated. If these are not successful extirpation of the bladder and transplantation of the ureters must be considered

HUEBNER stated that he regards nodules as positive evidence of tuberculosis only when they are associated with other suggestive signs

STETTINER (Z)

Pappa The Technique of Nephrotomy in Cases of Large Irregular Stones (Technique der laparotomie bei den großen unregelmäßigen Nierensteinen) *Bull et m Soc d cl d P* 93 15

An extensive pyelotomy having been made the stone is pushed toward the periphery of the kidney with the inserted index finger and a second incision then made down to it. In this way its extraction is facilitated and the chances of its breaking and escaping are minimized

In order to prevent infection of the sutures of the kidney the author passes them only twice through the parenchyma. The details of this technique cannot be presented in an abstract. Finally instead of placing a drain in the parenchymal incision where it may cause severe hemorrhage on its removal he drains the pelvic opening

In discussing the method described MARION stated that he found the primary incision and subsequent drainage of the pelvis very satisfactory in cases of large stones but impossible in cases of stones not

causing distension of the renal pelvis. In two cases he found the method of suturing not sufficient for hemostasis and therefore although it is theoretically good he believes it must be used with the greatest caution

CHEVASSU stated that several small openings are preferable to long nephrotomy incisions from pole to pole as the latter are dangerous. If there is good function on the other side he prefers to remove a kidney containing a large stone as usually it is practically functionless. RUDOLF MARY MD

Summers J E The Transverse Incision in the Surgery of the kidney *Abstr Surg St J* 1923 11 3

Large kidneys are removed with difficulty by the usual lumbar incision. The transperitoneal incision along the linea semilunaris may be used. Morris employs a retroperitoneal lumbar incision in addition to the transperitoneal incision. The posterior opening is used for drainage if this is indicated

The author uses the technique of Brazey who modified that of Pean. The incision is transverse beginning a little below and behind the palpable end of the eleventh rib and extending not quite to the midline between the umbilicus and the ensiform. The muscles are divided plane by plane with great care to avoid the nerves. The peritoneum is not entered. As a rule the free end of the eleventh rib points to the pedicle

This incision leads directly to the body of the kidney and allows much better control of the upper pole. The pedicle exposed on its anterior surface and can be secured before the kidney is removed. Tumors may be freed more easily than with other technique and the incision can be turned into a laparotomy on either side. C D PICKRELL MD

Ekehorn G Exploratory Exposure of the kidney on One Side Before Nephrectomy on the Other in Advanced Cases of Renal Tuberculosis (M e E fahru g n b tress explorativer I dleg ung d r N e u f d n S t e o r N ph ektom e u f d r a d r e n S e t i o g e s c h i t t e n e l a e l l e v n t b e k u l o e) *Ztsch f Chir* 1923 11 3

Exploratory exposure of the opposite kidney in twenty seven cases demonstrated that nephrectomy is possible in twenty but contra indicated in seven. In one case bilateral catheterization was possible but the urine from both kidneys contained tubercle bacilli. In five cases only one ureter could be catheterized in sixteen neither could be catheterized and in five even cystoscopy was impossible

The author always performs exposure and nephrectomy at one operation and usually closes the wounds on both sides completely without drainage. As a rule healing occurs without complications

In advanced bilateral cases the final results are not of course ideal. Of fourteen patients reexamined the condition of four who had been subjected to nephrectomy was five nine and twelve

years previously was found improved. Of seven of whom only an exploratory exposure was done six died soon after the operation and only one lived for three years.

The question as to whether persons with advanced unilateral renal tuberculo should be operated upon by the author answers in the affirmative. They are not subjected to nephrectomy and are generally benefited as the paraffin and toxic action decrease. The posture and tamination of the other kidney should not be decided whether it is tuberculous but to determine whether its condition is such as to allow the removal of the degenerated kidney. Exposure should be done carefully so as not to fracture the kidney. Decapsulation is not done but the ureter should be pipetted as it usually shows changes very rarely. The author makes functional tests of renal tuberculosis only exceptionally.

VOLLMER (Z)

Neumann A Case of Double Kidney Removed by Operation (E. Fall, p. 141, if 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100)

Neumann's patient sought treatment because of hematuria. The upper accessory portion of the removed kidney showed the typical picture of hydronephrosis and the lower portion showed hemorrhagic nephritis and pyelitis.

In the discussion of Neumann's report FEDOROFF among others called attention to the fact that in such cases only the accessory portion of the kidney should be resected as only this part shows the spasmodic changes. The hemorrhagic nephritis in the normal portion of the specimen is undoubtedly a reaction. Following the resection of the accessory portion the remaining portion will soon become normal.

BLUMENTHAL (Z)

Nikolai A. M. The End Results of Transplantation of the Uterus into the Intestine (D. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100)

In certain cases of the bladder and especially in certain operations for carcinoma of the uterus with involvement of the bladder the transplantation of the ureter into the intestine is the only operation which will render existence tolerable. The danger of an ascending pyelonephritis are not very great and are eventually overcome. The author reports three cases of transplantation of the ureters into the intestine which were traced for many years. All of these patients suffered from postoperative pyelitis but ultimately recovered.

The first case was that of a 22 year old woman with a vesicovaginal fistula in whom the inflamed adnexa were removed during the laparotomy and both ureters were transplanted into the intestine according to the method of Tikhoff.

The second case was that of a woman 45 years old in whom the uterus, the adnexa and the greater part of the adheent bladder and ureters were removed

because of an advanced carcinoma of the uterus and the ureters transplanted into the intestine. Five years later when the patient reentered the clinic for the treatment of an incisional hernia the urine was regularly passed per rectum several times a day separately from the stool. During the second laparotomy the sites of implantation of the ureters into the sigmoid flexure appeared as small elevations without any other change. Recovery was smooth. On rectoscopic examination rhythmic contraction of the implanted ureters was observed. Urinalysis revealed nothing abnormal and the patient stated that she felt well.

The third case was that of a woman 35 years old in whom the ureter was accidentally injured during hysterectomy for carcinoma and was transplanted into the intestine. When the patient was re-examined after two years he stated that she had felt well and there had been no urinary disturbances until three months previously when carcinomatous involvement of the bladder had developed. In this case also the good function of the transplanted ureter was demonstrated on rectoscopic examination.

These cases show that the transplantation of the ureters into the intestine may be well borne for years that the subjects become accustomed to the condition and feel well and that urination and defecation are carried out separately. Urinalyses showed no pus and only a slight turbidity from albumin.

SCHAEKE (Z)

## BLADDER URETHRA AND PENIS

Bumpus H. C. J. and Foulds G. S. Gradual Emptying of the Overdistended Bladder (J. Am. Med. Ass. 9, 3, 1918, 8)

It is generally recognized that the removal of the urine from a chronically overdistended bladder is often followed by untoward symptoms and even death. If the bladder is emptied rapidly and completely at one time the sudden reduction of the intravesical pressure results in immediate congestion throughout the urinary tract with resulting edema and hemorrhage which may be so severe as completely to suppress renal function by increasing the pressure within the renal capsule to a point incompatible with glomerular and tubular function. Even though the process may not go on to complete suppression of urine the congestion and edema make the urinary tract fertile field for infection a complication which is borne very poorly by this group of patients. It is the undoubted cause of many of the fatalities.

O'Connor has shown that coincident with emptying the bladder of residual urine there is a decided fall in the blood pressure. Thus the difficulty of filtering urine through a congested renal parenchyma is added the lowering of the pressure behind this filter which still further embarrasses the mechanism of excretion. O'Connor found that in 7 per cent of his patients the drop in the blood pressure reached its lowest point at the end of forty-eight hours.

If a procedure could be adopted that would delay the period of falling blood pressure and so prolong it that the new level was not reached for several days instead of in the first forty eight hours it should greatly aid in keeping at a maximum the amount of urine excreted during the period when the urinary tract is adjusting itself to the new conditions of pressure. In 1920 Van Zwalenburg described such a method of emptying over distended bladders without at any time reducing the intravesical pressure suddenly. This method has since been used at the Mayo Clinic in the treatment of eighty three patients. The results in twenty of these cases have been previously reported.

A soft rubber catheter is introduced into the bladder and fastened in place and a clamp is attached to the distal end to prevent the loss of urine. The catheter is then connected to a rubber tube filled with water which leads through a simple manometer to a receptacle usually an ordinary enema can placed about 6 ft. above the floor. The system having been completed the clamp on the catheter is released and the pressure in the bladder read on the manometer the receptacle then being lowered so that the outlet of the system is about 3 cm. above the level of the fluid in the manometer. The urine will then just trickle over on deep inspiration and the entire urinary tract will continue to function under its usual pressure.

Sudden edema and congestion incident to the removal of even a small amount of urine has not occurred. After rest in bed it is observed that the original bladder pressure as registered on the manometer gradually falls. The level of the receptacle may then be suitably lowered with care to keep it always a few centimeters higher than the reading on the manometer in order that the urinary tract may at all times be working against a continuous though lowering pressure. Under these conditions the time of emptying the bladder may vary from two days to a week, usually however it takes from three to five days. Instead of falling suddenly the blood pressure decreases more gradually and edema and congestion of the urinary tract are reduced to the minimum.

Seventy one of the eighty three patients treated by this method had benign hypertrophy of the prostate eleven a carcinoma of the prostate and one a urethral stricture of long standing. The oldest patient was 88 years of age and the youngest 48 (the stricture case) the average age was 57 years. Almost without exception the patients were in very poor general condition many were definitely uræmic on admission to the hospital. The majority had had definite retention and overflow for at least two or three months and several for more than two years. In many instances it was difficult to obtain a clear history regarding the duration of the urinary retention.

In all of the cases the bladder was distended sufficiently to be demonstrated by percussion or palpation above the level of the symphysis pubis. In

forty six it extended as a typical pyriform tumor reaching the level of the umbilicus. The renal function was generally very poor the specific gravity of the urine was low averaging 1.012 the average output of phenolsulphonephthalein in two hours was 10.59 per cent and the blood urea averaged 95.85 mgm. for each 100 c. cm. of blood. The creatinin estimation varied between 1.5 and 8.7 mgm. for each 100 c. cm. of blood the usual amount being from 2 to 4 mgm.

Careful records were kept of the diastolic and systolic blood pressure the intake and output of fluid and the intravesical tension. Blood urea and creatinin estimations were at first made daily later twice a week. These data have been charted and typical charts are reproduced. The charts show that the critical period is at the time the blood pressure has reached its lowest point. The longer this is delayed the greater the amount of urine excreted and the more rapid the fall in the blood urea. Thus if at the period of minimal blood pressure the urine output has also markedly declined and the urea is rising the prognosis is very grave. If however with the falling blood pressure the urine output is sustained and the urea diminishing the prognosis is good irrespective of the amount of urea.

In almost all of the cases the renal function improved the average phenolsulphonephthalein output in two hours it increased from 10.59 to 40.42 per cent. The blood urea average also fell decreasing from 95.85 to 52 for each 100 c. cm. of blood. A successful prostatectomy was performed on forty two patients prepared in this manner and suprapubic drainage was established in nine. Of the eighty three patients on whom this method was used four died. One of these deaths was due to peritonitis following rupture of the appendix and another to prostatic abscess in a patient with advanced carcinoma of the prostate. The 2.5 per cent mortality in the remaining cases indicates the effectiveness of the method described and demonstrates that it is worthy of more universal adoption.

GORDON S. FOULDS, M.D.

**Bronnikoff, M. N. The Rapidity of Stone Formation in the Bladder.** (Zur Frage der Geschwindigkeit der Steinbildung in der Harnblase.) *Ann. Chir. Gyn.* 92: 11, 1901.

In contrast to the etiology, diagnosis and treatment of vesical calculi the rapidity of their formation has received little attention. In the literature the author was able to find only five case reports in which this was mentioned.

In one of Bronnikoff's cases that of a patient who was operated upon twice it was possible to determine that a large stone which was removed by suprapubic section and weighed when dried 66 gm. had formed in a period of three and one half years. The nucleus was a blood coagulum. In the cases reported in the literature in which the time was noted the stone developed around a foreign body.

SCHAEFER (Z.)

**Squier J B Segmental Resection of the Bladder for Neoplasm** *Surg Gy & Obst* 1933 xv: 179

The author believes that we have not yet advanced beyond the experimental stage in the use of radium and deep X-ray therapy in the treatment of bladder neoplasms and that in the management of vesical carcinoma surgery must still be regarded as of first importance.

As better results were obtained in the treatment of gastric cancer after the type of operation was based on a knowledge of the lymphatics of the stomach better results will probably be obtained in vesical carcinoma when operation is based on a knowledge of the lymphatics of the bladder. Squier describes the distribution of the bladder lymphatics and their drainage toward the inferior bladder segments. As the removal of all the sources of lymphatic extension in cases of bladder malignancy would be impossible the operative technique devised by him and used in a series of cases is a compromise between the ideal and the possible. It consists in a segmental resection of the entire thickness of the bladder depending on its direction and extent upon the position of the tumor and the chance of recurrence in that area.

Squier has found that cancer of the superior and lateral wall segments recurs more rapidly than that of the ureteral segment and necessitates extensive removal of the bladder wall toward the base. Growth just beneath the prevesical space also shows a tendency to rapid recurrence. For the varying situations of malignancy he gives the following lines of resection on which in most cases will amount to a removal of practically one half the bladder.

When the tumor is on the anterior surface the bladder is bisected laterally and excised down to the internal sphincter. When the tumor involves the lateral walls the bisection is made from before backward in the median line and the line of bladder excision made just above the ureteral orifice or as in tumors involving the ureter.

In the growths involving the ureteral segment the bisection is the same but the line of excision is just back of the internal sphincter with transplantation of the ureter. Tumors occurring at the fundus near the insertion of the urachus should be removed with the urachus and attached adventitious tissue en masse peritoneum et up to the navel.

Tumors occurring in that part of the fundus which is covered by peritoneum should be removed with the attached peritoneum.

Tumors on the ureteral segment should be removed with the ureter and attached and the ureter divided only after the mass has been entirely freed and hangings from the ureter as a pedicle.

Of a series of seventy-five patients treated by the author by this method of segmental resection twenty-seven died in the hospital after the operation, twenty have recurrences or extensions by metastasis and twenty-eight are without signs of recurrence from two to eight years after the operation.

He is L. SANFORD M.D.

**Joseph E. A Case of Total Extirpation of the Bladder** (*Ein Fall von Total-Extirpation der Blase*) *Zischl. f. d. Chir.* 1933 xii: 353

In the case of a 51-year-old man a tumor close to the right ureter was treated by thermo- and chemical coagulation (the latter by concentrated trichloroacetic acid). Two months later a small recurrence was removed in the same way. Six months later a second recurrence had developed and the left ureter had become involved. Because of bladder hemorrhages a suprapubic fistula was then formed. Subsequently the catheter was replaced with a broad drain.

One year after the beginning of treatment on account of unbearable pain a bilateral pyelostomy was done and a drain placed in each kidney pelvis to drain the urine into a portable receptacle. Thereafter an irrigation with 1,000 silver nitrate was given twice a week. One month later under lumbar anesthesia total extirpation of the bladder and prostate was done through a Tincion with severance of the urethra and ureters. The peritoneum which was torn was closed with adhesive strips only a small opening being left.

The wound healed but the patient died three months later from metastases and a local recurrence. In the author's opinion the relief from the pyelostomy was only temporary because the carcinomatous bladder continued to produce serious secretion being strongly irritated. Total extirpation of the bladder is usually done too late as it is not until the advanced stages of the disease that the patient will consent to it.

FRA-Z (Z)

**Jastram M. Th Treatment of Injuries of the Male Urethra** (*Zur Behandlung der Verletzungen des männlichen Harnleiters*) *Dtsche Zeitsch. f. Chir.* 1933 clix: 70

The treatment of an immediate Bouliere operation in cases of typical rupture of the urethra is generally recognized. Operations differ only as to details such as the method of suturing and the after treatment (permanent catheter, the use of bougies, etc.). Koenig's objections to the use of the permanent catheter are not shared by the majority of surgeons. In cases in which the injury to the tissues is not extensive expectant treatment with a permanent catheter may be given. Then if the progress of the condition is favorable a urethral incision will have been avoided. In all cases in which a retentive catheter is used the bladder must be irrigated once or twice daily in order to prevent cystitis. If it is impossible to pass a rubber catheter a metal catheter (Meier's) may be left in place for a few days.

Primary circular suture of the torn ends is not always necessary. Koenig and Pels Leusden suture only the anterior wall of the urethra, allowing the posterior wall and the perineal wound to remain open. In cases of marked infection this is always necessary. The most favorable conditions for healing without stricture are established when it is possible to close the perineal wound over the circularly sutured urethral wound.

Strictures may be fully established within a period of four or five weeks. Fourteen cases of impermeable stricture admitted to the Koenigsberg clinic in the past few years were treated by external urethrotomy resection and suture. The mortality was high 35.7 per cent. The cause of death was almost always urinary stasis with subsequent infection. A preparatory cystotomy is indicated on this account if no other.

The article is supplemented with five very instructive roentgenograms of urethras filled with opaque material.

GRAUMAN (2)

## GENITAL ORGANS

Day R V. Perineal and Suprapubic Prostatectomy and the Choice of Operation in Types of Cases. *Clinical Journal of Medicine* 1933, 1, 371.

The statistics of many operators lead to the conclusion that perineal prostatectomy has a slightly lower mortality than suprapubic when each is performed in the most skillful manner after the most careful preparation.

Recently Day has been subjecting patients who are good risks to a suprapubic operation performed in one stage with bladder neck suture plus the use of a haemostatic bag or packing or performed in two stages if the catheter is not well tolerated if the urine is persistently ammoniacal from infection by urea splitting organisms or if stone is present. Packing the bladder according to Freyer's method after the two-stage operation is occasionally resorted to and is entirely dependable to control bleeding but causes considerable tenesmus.

In cases which are poor risks he usually operates by the perineal route employing caudal and transsacral or even gas anaesthesia. This method allows the patient to get about very soon and is less apt to be followed by pulmonary, cardiac or renal complications.

The author's opinions are based on more than 200 prostatectomies, 20 per cent of which were done by the perineal route. The mortality in his cases of suprapubic prostatectomy has been 4.3 per cent notwithstanding the fact that until recently all the poor risks were operated upon by this method in two stages.

Day's conclusions are as follows:

1. Sixty-five per cent or more of patient requiring prostatectomy are good risks and have a reasonable expectancy of life of from four to twenty years.

2. The operative mortality rate of either type of operation in this selected class of cases should not be more than 1 per cent.

3. The choice of anaesthetic is of great importance. The mortality has shown a decided drop since the introduction of caudal and transsacral or gas anaesthesia for perineal operations and of spinal anaesthesia or caudal and transsacral anaesthesia plus field block for suprapubic operations.

4. From 15 to 35 per cent of any given series of cases are poor risks. In these the mortality of the

suprapubic operation is probably twice as great as that of the perineal operation. In cases of poor risks the life expectancy is not more than from one to three years and the patient must be satisfied to take the chance of a poor functional result.

5. In the case of the younger and sounder man with a reasonable expectancy of a considerable number of years of life and of vitality sufficient to withstand a more radical and precise suprapubic enucleation with sure preservation of sphincter control, no diminution of sexual power and no risk of a urethrorectal fistula, the suprapubic operation should be done. The suprapubic operation is not apt to give poor results but if such results occur they are easily corrected. Poor results following perineal operations are usually irremediable.

LOUIS CROSS M.D.

Maxeiner S R and Waldschmidt R H. Tuberculosis of the Epididymis. *Medical Record* 1923, 923, 492.

In ten (66 per cent) of fifteen cases of tuberculosis of the epididymis studied by the authors, extra-genital tuberculosis was found before operation and in the same number of cases the condition was bilateral. Pain was present in thirteen cases and the symptoms began in the lower pole in twelve cases. The general condition was improved after the operation in eight cases and unchanged in seven. As drainage promotes sinus formation, primary closure should be effected even in cases of a ruptured tuberculous abscess.

THOMAS F. FINEGAN M.D.

Anglesio B and Baroni G. The Grafting of a Vein in the Vas Deferens. *Innesti e si sul deferen* 4. *Archiv* 1923, 1, 277.

The authors have made seventeen autoplasmic grafts of the femoral vein into the vas deferens of the dog to replace resected portion of the duct ranging from 0.5 to 2.5 cm in length. The vein transplant was fixed by sutures. The results of these experiments are summarized as follows:

1. The autoplasmic venous transplant substituted for a resected portion of the vas deferens always maintained the continuity but never the patency of the duct.

2. The duct was first closed by proliferation of its mucosa especially in the vicinity of the points of resection. Later the epithelial proliferation was infiltrated and ultimately was replaced by connective tissue from the submucosa.

The venous wall of the graft rapidly lost its endothelium and muscular tissue but the elastic tissue resisted much longer. The disappearing elements were replaced by connective tissue. The vascular lumen which was occupied at first by amorphous and crystalloid detritus and red cells later showed paracellular infiltration at the periphery and became filled by a young connective tissue rich in cells and vessels which had its origin in the sectioned surface of the stumps of the vas and transformed it into a fibrous cord.

W. A. BRENNAN



## SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Ashhurst A P C Brimer R S and White C J  
Cystic Disease of the Bones: A Study of Fifteen  
Cases. *Arch Surg* 1913; 66

The authors report fifteen cases of cystic disease of the bones the only common feature of which was the presence within the bone of some process resulting in rarefaction absorption or destruction of bony tissue with expansion and thinning of the cortex. The cases included osteomyelitis of the shaft of the humerus resembling cystic disease of a bone cyst in the tibia a tuberculous cyst of the ulna fibrocystic osteitis of the femur developing after operation for knock knee fibrocystic osteitis of the tibia developing after operation for bow leg a bone cyst involving the upper end of the humerus multiple cystic osteitis (case) myeloma of the humerus (giant cell sarcoma) giant cell sarcoma of the vertebrae myeloma of the head of the tibia myeloma of the radius myeloid sarcoma of the humerus cystic changes in an osteosis of a lesser trochanter of the femur and cystic disease of the trapezoid. The causes were pyogenic bacterial infection tuberculosis syphilis and unknown causes.

In the discussion the authors state that the acute form of hematogenous staphylococcal infection of bone produces typical acute osteomyelitis. The chronic form is rarely attended by sequestration but often causes marked thickening. Destruction of bone is usually slight. In such cases the condition sometimes takes the form of Brodie's abscess. Markov's abscess or bone scleroma. In the subacute type a faint cystic area may develop.

Bone tumors may also be of a cystic nature. Histologic examination is necessary for the diagnosis.

With regard to synchysis of bone the authors state that they have recognized only two types of cystic lesions due to this condition—cysts occurring beneath the periosteum and cysts formed in short bones and in the ends of long bones in hereditary synchysis.

The true cause of bolyt oph es is oft n un kno n. In s me c s es t is a rem te infect on or an abnormality of metabolism.

Other c uses of cystic disease of bone are certain types of bone tumors.

Lovett has pointed out the impossibility of differentiating osseous syphilis, osseous tuberculosis and chronic osteomyelitis by means of the roentgen ray, and Bloodgood states that an X-ray diagnosis is impossible especially in cases of cysts, giant-cell tumor, and central sarcoma.

JOHN MITCHELL M D

Auvray Two Cases of Gonorrhoeal Arthritis  
Treated by Intra Articular Injections of Anti  
g n coccus Serum (Deu s d a t h t g n o r r o e  
l t a t e par les j t intr t cul ires de  
s e m n t g c o c c o c q ) B i l l i m e m S d c h  
d P 10 t 1 x 60

**CASE 1** The patient was a woman who complained of pain, enlargement and progressive disability of the knee of 6 months duration. At the time of examination the knee contained fluid and a very tender point was found on the inner side. Movement caused violent pain. Twenty cubic centimeters of fluid were aspirated and gonococci were demonstrated. Two days later another aspiration of 20 c.c. was done and 15 c.c. of Nicolle's serum was injected. Two days later 5 c.c. of fluid were withdrawn and 15 c.c. of the serum injected. The temperature was 39 degrees C. during the next 10 days and it then oscillated between 37 and 38 degrees C. for some time. Six days after the last injection the point of pain disappeared but the joint was still painful on movement. By persistent effort over a long period mobilization was obtained. As a result extension is complete and is more than a right angle and the patient is able to walk.

Case 2 The patient is a pregnant woman with gonorrhea and syphilis and a plastic ankylosing type of arthritis of the right wrist with inflammation of the extensor tendon sheaths. One cubic centimeter of fluid was aspirated from the peritendinous space with great difficulty, showed gonococci. Eight days later 2 ccm of Nicolle's serum were injected into the joint tendon sheath, and peritendinous structures and 18 ccm injected intramuscularly. Two days later 3 ccm were injected into and around the joint and 17 ccm into the muscles. Eleven days later 3 ccm were injected into and around the joint. Alternating amelioration and aggravation of the swelling and pain occurred. Persistent massing and mobilization failed to prevent almost complete wrist ankylosis five months later. Iron tonics and supination and a little of finger movement received in the author's opinion the treatment failed. The chief cause of the difficulty of intruding serum into the tight wrist joint. W. T. C. B. T. M. D.

493  
 The  
 ment of Arth itide with High Doses of Radi  
 um Em nati n(W t r e l f h r u g b e i d B e  
 h il l g A t t e l m t l h D  
 Rad m m t l M d M o

For the treatment of chronic arthritis (primary and secondary forms of chronic rheumatoid polyarthritis and ankyrositis deformans) the author recommends the use of high doses of prednisolone in

the drinking water (300,000 to 1,000,000 maché units). In the majority of cases so treated typical focal reactions appeared. With the appearance of these focal reactions the dosage should be reduced. No harmful results developed when the dosage was increased slowly and carefully. The histories cited demonstrate considerable improvement from the use of high doses. 70 per cent of the cases being favorably influenced. MAU (Z)

**Schubert A** The Etiology of Dupuytren's Contracture (Die Aetiologie der Dupuytren'schen Contractur) *Deutsches Zeitschrift für Chirurgie* 1913 111 362

Dupuytren's contracture begins in the fourth and fifth fingers in the zone of the ulnar nerve. In Schubert's opinion it is not an inflammation of the palmar fascia as maintained by Ledderhose and trauma is not an etiological factor. McKrogius regards it as the result of degeneration due to an atavistic arrest of development in the muscle tendon tissue of the future aponeurosis. Schubert accepts the neurotrophic theory. The contracture occurs in all forms of ulnar injury. Against the neurotrophic theory are the statistics from the war collected by Coenen which do not show a single case of Dupuytren's contracture among thirty-seven injuries of the ulnar nerve. However this proves only that such injuries are not always complicated by the contracture and that in addition to injury there must be a constitutional tendency to connective tissue proliferation. VORSCHUETZ (Z)

**Coulland** Perosteal Osteosarcoma Arising from the Lower End of the Femur. Failure of Deep Radiotherapy. Disarticulation of the Hip under Preventive Hemostasis by Mombert's Method (Ostéome périostéique et du débridement à l'échelle du fémur et de l'articulation de l'hippe par la méthode de Mombert) *Bulletin de Médecine Chirurgical* 1913 111 1

In the case of an emaciated anemic soldier 23 years of age an attack of pain swelling increased local temperature and moderate effusion in the right knee was followed by atrophy of the muscles of the leg. Within a period of a few months the knee became double its normal size. The swelling involved the lower half of the thigh and ceased abruptly at the tibial plateau. The skin over the tumor was brown and traversed by varicose vessels. Pressure over the femoral condyles was painful. The leg showed moderate oedema and the inguinal glands were enlarged. Passive knee movements were very painful and greatly limited. The X-ray showed diffuse periosteal proliferation of the lower third of the femur—an osteosarcoma.

As four X-ray treatments of six hours each were without effect the author disarticulated the hip under preventive hemostasis by Mombert's method. An extensive incision permitted removal of the inguinal glands. The wound remained open for a month and drained a seropurulent discharge. Ulti-

mately the patient recovered completely, gained 10 kgm. and was able to walk well with the aid of a prosthesis. The pathologic diagnosis of the tumor was sarcoma and that of the inguinal gland inflammation.

The author has used Mombert's preventive hemostasis successfully also in three other cases of disarticulation of the hip. The blood pressure taken during the operation showed no decided change upon removal of the constriction.

In 1915 at Verdun Savariaud performed under preventive hemostasis fifteen disarticulations of the hip and forty-six amputations in the upper third of the thigh. The only fatality was due to asphyxia caused by the aspiration of vomitus.

Broca has done four successful disarticulations of the hip for osteosarcoma by the formation of an anterior flap and transfexion without preventive hemostasis. The muscles were not resected. No local recurrence developed but all of the patients died from metastases in the lungs or liver. In the treatment of sarcoma of the femur Broca and Alglave prefer disarticulation of the hip to amputation. Alglave resects the thigh muscles in which recurrence most often develops as far as the iliac bone. One patient who was treated in this way for recurrent periosteal sarcoma of the lower end of the femur was well seven years after the operation and another who had sarcoma of the thigh muscles was still well at the end of three years.

Lapointe emphasizes rather than the extent of the amputation the importance of operating before general metastasis has occurred. In ten cases Lenormant found very satisfactory Verneuil's technique of femoral ligation with hemostasis layer by layer. Walther experienced no difficulty in six hip disarticulations done without preventive hemostasis.

Savariaud considers preventive hemostasis valuable in atypical operations for gas gangrene, chronic suppuration, tuberculosis, malignant growths and operations upon caecætic subjects. It is especially valuable to the inexperienced operator.

WALTER C. BURRET, M.D.

**Axhausen G** The Course of Koehler's Disease and Perthes' Disease (Der Verlauf der Koehler'schen und Perthes'schen Krankheit) *Deutsche Zeitschrift für Orthopädie* 1913 111 553

The spontaneous fractures of the metatarsal epiphysis in Koehler's disease are secondary to a total necrosis of the bone and marrow of the epiphysis. Consequently nothing is shown by the X-ray in the first stage. Regeneration begins in the periosteum of the metaphysis and the connective tissue grows into the marrow spaces of the dead epiphysis at the boundary between the joint and the epiphyseal cartilage. The weight causes an impression fracture on the plantar joint surface and the X-ray shows flattening of the epiphysis and thickening of the diaphysis. The connective tissue also grows



surrounding capsular apparatus which had been soaked in alcohol for three days and in normal salt solution for thirty minutes. The operation is described in great detail. Healing of the completely closed wound followed without reaction.

After four weeks the patient was able to walk and after six weeks was able to bend his knee to 35 degrees. Four years after the operation the motion of the knee joint was practically normal and the patient was able to work in a standing position and to walk without limping.

RUDOLF MARX M.D.

#### Lang K. The Functional Prognosis of Tendon Suture (Zur funktionell. Prognose d. Sehnen naht) *M d Kl* 1923 x 53

On the basis of a study of 103 cases of tendon injuries at the Hochenegg Clinic Lang arrives at the following conclusions:

1. Primary suture should be attempted in every case of tendon injury in 76 per cent of the cases reviewed the functional result was good.

2. Suture of the extensor tendon gives a better prognosis (6 per cent) than suture of the flexor tendons (6.2 per cent).

3. Secondary suture of the flexor tendons did not give a good functional result in a single case.

4. The most important factors in the prognosis are (1) the localization of the injury the prognosis is unfavorable if the lesion is in the palm or on the flexor surface of the fingers (2) adhesion of the sutured tendons to the surrounding areas.

BANGE (Z)

### FRACTURES AND DISLOCATIONS

#### Schubert A. The Responsibility of the Surgeon for the Development of Ischemic Contracture (In view of the results of the treatment of the fracture of the humerus) *M d Kl* 93 373

A circular fixation bandage may be the cause of ischemic contracture following fracture. It is not always the cause however as this condition may occur even when plaster of Paris casts and splints have not been employed. Ischemic contracture develops very quickly reaching its maximum severity in from six to eight hours. It is not a condition preliminary to gangrene as Bardenheuer believed. To the obstruction of the circulation there must be added an injury to the vascular nerves. Therefore in the most common form of ischemic contracture—that following supracondylar fracture of the humerus—the median nerve must be affected as well as the ulnar artery. In the knee because of swelling the commonly used crecula bandage may increase the already present circulatory disturbance.

The surgeon cannot be held responsible for ischemic contracture if the bandage does not constrict anywhere if it is inspected at proper intervals and if it is removed as soon as circulatory disturbance is noted. In cases of supracondylar fractures the condition of the artery and nerve must be determined

immediately. If there are evidences of disturbance the site of injury must be left exposed. Even without symptoms referable to the artery and nerve the circular plaster of Paris bandage on the upper extremity always contra-indicated because it may become constricting as the result of secondary swelling of the tissues.

GRAHAM (Z)

#### Clavelin. Isolated Fractures of the Condyle of the Humerus (Les fractures isolées du condyle huméral) *Rev de chir* Par 1923 xl 15

The fracture described unlike the classical fracture is entirely intracapsular. It occurs after the union of the epiphysis to the diaphysis otherwise it would be a detachment rather than a fracture. The condition is rare. It is usually the result of a fall upon the hand or the flexed elbow and occurs in adults and adolescents beyond the age of 14 years. Pain is not a very prominent symptom. The ability to flex and extend the forearm is decreased. The roentgen ray completes the diagnosis.

The treatment depends upon the degree of the loss of function. If the loss is not great surgical intervention is not desirable but if there is marked loss of function extirpation of the fragment by the anterior or the posterior route should be done. In practically all cases operated upon the functional result has been excellent.

ROSCOE JERSON M.D.

### ORTHOPEDICS IN GENERAL

#### Coffield R. J. The Etiology and Diagnosis of Back Lains (Les lésions de la colonne vertébrale) *M d Kl* 1923 iv 280

Pain in the back is caused by traumatic or static injury, infection and neoplasms. Static defects often cause injury to the muscles and ligaments of the spine and vertebrae. Traumatic injuries may result in fractures of the vertebral bodies, the laminae or the spinous processes.

Comminuted fractures of a vertebral body may or may not be subluxated and may cause impingement on the cord or spinal nerves with consequent interference with sensation and motion. This type of spinal injury may pass unnoticed until a deformity or a disturbance in the motor or sensory nerves develops.

Fractures of the transverse processes may result from direct or indirect violence and are not infrequent.

Fractures of the spinous processes occurring from direct violence can be discovered by palpation and X-ray examination.

Subluxation of the vertebrae often follows minor injuries usually those in the cervical and lumbar regions. Subluxation of the fifth vertebra occurs very frequently and may be revealed by an increase in the cervical or lumbar curve and the X-ray findings. Often it is accompanied by fracture.

In the author's opinion subluxation of the sacroiliac joints occurs only as the result of a severe crushing injury or relaxation of the ligaments. Ligamentous strain is very frequent and may be accompanied

by pain extending down the leg to the ankle due to irritation of the lumbosacral plexus. In the author's opinion it is due to constant contraction of the hamstring and posterior pelvic muscles. The X-ray examination is usually negative. The condition is difficult to differentiate from lumbosacral strain although palpation elicits pain from the point affected and there is pain on straight leg flexion.

Lumbago is due to spasm of the lumbar muscles with constant limitation of motion in the lumbar spine. This is probably a myositis of infectious origin.

Sprain of the intervertebral ligaments may be due to direct or indirect violence. The X-ray examination is negative. Tenderness is present over the affected portion. Recovery is rapid.

Postoperative backache is due to the strain on the muscles and fascia of the spine in relaxation during prolonged anesthesia.

A disturbance of balance in the lumbar planes due to a short limb, hip disease or paralytic and structural scoliosis may cause pain. Pain in the antero-posterior plane may be due to a defective static condition of the feet, high-heeled shoes, a pendulous abdomen or an occupational posture. Alleviation of the underlying condition usually results in a cure.

Anomalies of the fifth lumbar vertebra such as sacralization may cause pain. Coccygodynia is due to tension upon the levator and other muscles attached to the coccyx in persons with a relaxed pelvic floor.

Of the conditions due to infection invading the spine, osteoarthritis is the most common. It develops in adult life and usually has its origin in foci of infection in the teeth, tonsils or sinuses or the gastro-intestinal or genito-urinary tracts. Early in the disease the X-ray examination is negative but later there is lifting of the edges of the vertebral bodies which may finally cause ankylosis.

The Marie Strunpelt type of spondylitis is a progressive ankylosis of the entire spine due to calcification of the ligaments. The costo-vertebral articulations become ankylosed and the ankylosis interferes with respiration.

Tuberculosis of the spine may occur at any time of life and attacks most often the dorsolumbar, the lumbar, the dorsal and the cervical regions in the order named. Deformity may be prevented if the disease is detected and treated early. After collapse of the vertebral body deformity results.

Syphilis of the spine occurs in adult life and can be differentiated from tuberculosis of the spine only by means of the clinical history and the laboratory and X-ray findings.

Typhoid infection of the spine occurs during or shortly after typhoid fever and usually in the lumbar or the dorsolumbar or the lumbosacral regions. The signs include local tenderness and limitation of motion. The X-ray shows rarefaction of the body with thinning of the disk.

Gonorrheal arthritis occasionally invades the spine. It may be diagnosed from the history of urethral infection, the involvement of other joints and the absence of destructive or hypertrophic change in the spine.

Acute suppurative osteomyelitis is rare. Its course is rapid and accompanied by pain and high temperature. The X-ray shows destruction of the bodies of the vertebrae.

With regard to tumors of the spine the author states that myeloma involves the body. In the X-ray picture it simulates sarcoma but the pain is less severe and the condition is not as frequently fatal.

Sarcoma of the spine may occur at any age, involves the body and causes severe pain which is not relieved by rest. Death generally occurs within two years. After extensive destruction paralysis of the lower extremities may develop.

Carcinoma of the spine is always secondary most frequently following cancer of the breast in women and cancer of the prostate in men. There is destruction of the vertebral body with new bone formation which encroaches upon the nerve roots causing referred pain.

Reflex back pains are due to unusual stimulation of the afferent nerves due to tumors of the posterior mediastinum, gall bladder disease, aneurysm of the lower thoracic or abdominal aorta, carcinoma of the rectum, enlargement or disease of the prostate and occasionally gastric ulcer, appendicitis, kidney disease, tumors of the cord, tabes dorsalis or neuritis.

REDFORD S. RICH, M.D.

Van Neck M. Cicatrices of the Limbs  
(Cicatrix causes deformities) Arch. Fra.  
Surg. 1923, 14.

The treatment of vicious cicatrices of the limbs is one that demands the greatest patience on the part of both the patient and the surgeon. The cicatrix is relatively supple and elastic in which case physiotherapeutic treatment for several months is indicated or it is rigid in which case it must be removed and its site covered by skin grafts.

Van Neck describes some of the signs indicating that a scar may be stretched and discusses the method of elastic traction devised by Martin which he has perfected by the use of a small hand apparatus. He believes that in cases of adherent scars massage and mechanotherapy are of very little value and natural excision is the best treatment. For cases of scars restricting movement of the fingers he recommends special rubber gloves which he has devised to help the natural movement of the fingers by elastic traction.

Several cases are reported. In one in which a crushing injury of the hand caused a thick unelastic scar in the internal part of the middle a gain of only a few degrees in the extension of the index finger was obtained after nine months of treatment.

W. A. BRENNAN

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Koenig E. Changes in the Blood Pressure Due to Operative Procedures (Ueber Aenderungen des Blutdrucks durch Operationen) *Dtsche Ztschr f Chir* 1923 *clxxviii* 187

Before the operation the blood pressure is raised because of the psychic condition. In the early stage of narcosis it tends to rise considerably (state of excitation) but later gradually falls. The decrease occurs more rapidly when chloroform is used than when ether is employed. In children narcosis has little effect on the blood pressure in the absence of complications.

Following anæsthetic over dosage the blood pressure always falls rapidly and low. In such instances there is a variable relationship between the blood pressure and the pulse. The level to which the blood pressure falls is of less importance as a sign of danger than the rapidity of the fall.

Ether causes no increase in the blood pressure but prolonged ether narcosis causes a marked decrease. The findings with regard to ethyl chloride narcosis were not constant. The effect of lumbar anæsthesia was manifested in one to three minutes after the injection by a distinct fall in the blood pressure which reached its lowest point in from fifteen to twenty minutes. In the severe after effect of lumbar anæsthesia the state of collapse was always preceded by a fall in the blood pressure. The explanation of this decrease following lumbar anæsthesia Koenig thinks is a toxic injury to the vascular center which is more acute in onset the more rapid the absorption in the dura. The type of operation performed under lumbar anæsthesia had no effect on the blood pressure.

The effect of local anæsthesia on the blood pressure was shown as a rule by a considerable rise. This increase Koenig attributes less to the absorption of adrenal than to psychic changes. Infiltration anæsthesia combined with narcosis and control injections of adrenalin in quantities of 1 to 2 mgm an injection usually employed for infiltration anæsthesia were not followed by a rise in the blood pressure. Unfavorable effects such as are frequently observed in the use of local anæsthesia in cases of gonorrhea the author attributes to the toxic effects of rapidly absorbed novocaine. The effects occurred following intradural sacral paravertebral and even retroperitoneal injections.

A marked fall in the blood pressure was observed by Koenig in one case of splanchnic anæsthesia induced according to the method of Braun. With the exception of long operations and those associated with a great loss of blood the operation itself had no effect in lowering the blood pressure.

As all conditions threatening life during operation are preceded by a rapid and sharp decrease in the blood pressure the threatening danger may be recognized early. LOHR (2)

Melnikoff A. The Surgical Anatomy of the Vessels of the Parenchymatous Organs (*Zur chirurgischen Anatomie der Gefässdysparenchymatösen Organe*) *Dtsche Ztschr f Chir* 1923 *cxxx* 60

The location of the hilus by which the vessels enter an organ is varied. In organs covered on all sides by a serous membrane (the lungs, spleen and liver) the hilus is found on the inner concave side while in the kidneys and the pancreas which have only a partial peritoneal covering it is on the inner edge. The liver has two hiluses the porta hepatis and a hilus on the inner edge.

The branching of arteries and vein into the nutrient branches of an organ may occur before the organ or within its parenchyma. Except in the pancreas the intra organic vessels of the parenchymatous organs run radially. The center may be in the organ or as is more often the case outside of it. The principal type of vessel architecture is the division of the main branch into a series of branches of the first order each of which branches into two or four branches of the second order which in turn divide into branches of the third order.

The points of branching of all the branches of the same order are equidistant from the surface so that planes are formed concentric to the hilus. In the lungs and liver and less distinctly in the spleen and kidneys the distance of these planes from the surface can be stated in centimeters.

Collateral vessels may be classified as external and internal. The former connect the branches of different systems and the latter the branches of the same system. Collateral of a different order are both extra organic and intra organic. The first group is the more important functionally as they completely restore the impaired circulation.

Clinically important non vascular parts of an organ are those that have only small vessels and efferent ducts. The lung have vessel free portions in the lower lobes. In the liver there is an extensive vessel free field at the suspensory ligament. In the kidney a similar area is to be found at the juncture of its posterior and median third. However the surgeon cannot always avail himself of these vessel free fields. The rational direction for an incision in the lungs is parallel with the ribs. In the spleen and kidneys it should be radial to the hilus not on the vertical but on the cross diameter. In the pancreas it should correspond to the direction of the efferent duct. GRAHAM (2)

Rabinowitz H M Experiments on the Infectious Origin of Thrombo-Angiitis Obliterans and the Isolation of a Specific Organism from the Blood Stream *J Gynec & Obst* 1923 xx ii 353

A bacillus is isolated from the blood of the affected local artery and from the general blood stream of persons suffering with thrombo-angiitis obliterans caused similar lesions in rabbits into which it was injected. The organism was distinctly hemagglutinogenic. *SAWELL KAY MD*

## BLOOD AND TRANSFUSION

II n A Stef n Itch M and Arnos J Itch V The Coagulating Action of Hypophyseal Extract (A preliminary report on the coagulating action of hypophysis) *P mid J* 1923 xx 32

The authors contend that if the hypercoagulability of the blood following the injection of hypophyseal extract were due to shock it would be accompanied by arterial hypotension and leucopenia as in cold dry shock. Hypotension and leucopenia do not always follow such an injection. Therefore while it may be true that the intravenous injection of extract of the posterior lobe of the hypophysis may sometimes cause shock, the characteristic increase in the number of leucocytes, the change in the blood coagulability is due rather to shock but to the direct action of the glandular extract. In this effect hypophyseal extract differs from all other glandular extracts. *KRIZLOVA PE D MD*

Nagy A The Treatment of Hemorrhage by Roentgen Irradiation of the Spleen (Preliminary report) *Bull z d H m rth* 1923 ii 35

Irradiation of the spleen with a stimulating dose of the X-ray was found to increase the coagulability of the blood in cases of hemoptysis, hemiplegia, abdominal hemorrhage, and the hemorrhage following minor operations. Prophylactic irradiation diminished the hemorrhage of a snail, myeladenoma. The effect was noted in a few minutes and lasted from two to four days or longer.

Nagy comments such irradiation in cases of hemorrhagic diathesis, hemophilic purpura, pulmonary and renal hemorrhages, menorrhagia, edema, myoma and other hemorrhagic gynecological diseases, child birth, dental hemorrhage, and a prophylactic measure before operation. *POLYA (Z)*

Coppler C H Blood Transfusion A Study of 245 Cases *A S J* 1923 3

In the years 1899-1900 Shattuck and Landsteiner discovered independently the phenomenon of iso-hemagglutination or that the blood of one individual frequently agglutinates the puscles of the blood of the other. In 1906 Jankey classified blood into four groups according to the agglutinating

powers and a little later Moss similarly classified a human agglutinin. The grouping of Jansky and that of Moss differ in that Moss's Group IV corresponds to Jankey's Group I and Jansky's Group IV is similar to Moss's Group I.

In hemagglutination occurs usually independently of hemolysis while hemolysis rarely occurs without a preceding or a simultaneous agglutination. In certain anemias but hemagglutination occurs. Isoagglutination is dependent on both the serum and the cells.

Several techniques have been developed for blood grouping: some microscopic and others macroscopic. In the Moss method which is favored by the author sera from persons in Groups II and III are added to a suspension of the red cells of the unknown group. Of the macroscopic tests those of Weir and Vincent are more common and simple. Weir uses citrated blood in test tubes while Vincent places the serum of Group I in one end of a slide and that of Group II on the other end. The slide is held in the fresh blood to test it. In another method of determining compatibility of blood with a group, the donor's serum and the recipient's corpuscle are studied under the microscope. If agglutination of the corpuscles occurs the blood is considered incompatible.

It is very probable that the grouping of the blood of an individual never changes. In blood grouping the most careful technique is essential. Blood to be tested should not be more than twenty-four hours old.

All glassware used must be cleaned perfectly and the tests should be made at room temperature. Blood sera may be carefully standardized and kept in an ice box in sealed glass tubes for a period of six or eight weeks. Sodium citrate solution is used to prevent coagulation and trisecol is a preservative. Some workers dry the sera and keep them in definite ly in sealed containers or dry them with blotting paper for future use.

The citrate method of transfusion seems to be most generally used at the present time, but the author employs the glass syringe cannula method, transfusing the whole blood without the addition of anticoagulants. Reaction occurs occasionally after all methods of blood transfusion. There may be fever, malaise, nausea, vomiting, a chill, syncope, urticaria, headache, etc. Fever is usually ranging from a small rise above normal to an extremely high temperature.

Blood from some donors causes a more marked reaction than that from others. The number of transfusions and the degree of anemia do not seem to be factors in the severity of the reaction. Some reactions seem to be purely anaphylactic.

Fatal hemolysis may follow transfusion even when apparently the bloods are properly matched or grouped. In the author's series of 245 cases referred to in this article there were two such deaths.

The indication for blood transfusion are increasing every year. Transfusion is given not only in

acute anæmia due to hæmorrhage but also in chronic anæmias many infections and both before and after a number of surgical conditions

It has been demonstrated that transfused blood cells may live from sixty to eighty days

The improvement noted after blood transfusion is due to the increase in the blood volume and the stimulation of the hæmatopoietic organs

Blood transfusion is almost a specific for acute hæmorrhage and its value in shock from other causes has been shown by many investigators Its use should be based upon blood pressure readings as well as the clinical findings The amount of blood transfused must depend on the indication and the size of the patient In acute hæmorrhage as much as 2000 c cm has been given Robertson and Bock have shown the necessity of supplementing blood transfusion with the administration of fluids by mouth It is therefore not necessary to supply as much blood by transfusion as was lost

Time is an important factor immediate transfusion after hæmorrhage is a life saving measure The author keeps a list of donors who can be called on hurriedly when an immediate transfusion becomes necessary These of course have been previously grouped

In pernicious anæmia blood production does not keep up with the blood destruction blood transfusion is therefore a valuable procedure as it replaces the red blood cells which have been destroyed In such cases the blood must be given slowly and the patient watched closely to prevent cardiac strain Although transfusion is not curative in pernicious anæmia it prolongs life and its beneficial effects last for some time Blood transfusion is occasionally used in simple anæmias and has often proved of value in the cases of anæmic patients prior to an operation occasionally reducing the surgical risk considerably It has been employed satisfactorily also in a number of other conditions including nutritional disturbances in infants With regard to its use in acute septic conditions the author believes with others that it is of questionable value and might prove extremely dangerous

The article is supplemented with a very complete bibliography on blood transfusion

HAROLD M CAMP M D

## LYMPH VESSELS AND GLANDS

Fox H and Farley D L The Effect of the X Ray upon the Histology of the Nodes in Some Cases of Lymphadenopathy as Found by Adenectomy During Treatment J R A I 923 1 26

This report is based upon seven cases in which a diagnosis was made from the clinical history and the pathological examination of an excised lymph node treatment was then given and later a second biopsy was done

The periods of clinical observation were of sufficient length in most cases to test the validity of the

diagnosis in others it was confirmed at autopsy Two of the patients are known to be still alive one was reported as doing well a year after discharge and the remaining four are dead

The histories of the seven cases are given and the sections of glands removed before and after irradiation are described in detail The diagnoses were (1) Hodgkin's disease in the cellular stage (2) Sternberg's pseudo leukaemic tuberculosis (3) sclerosing Hodgkin's disease (4) aleukaemic leukaemia or systemic lymphomatosis (5) leukaemia cutis with sublymphatic blood (6) aleukaemic leukaemia or reticulum sarcoma and (7) lymphosarcoma

It was found that the lymph cell and its congeners were definitely reduced while the endothelial and fibrous tissue cell instead of being limited in production seemed definitely stimulated to multiplication It was demonstrated very certainly also that there is no return to normal structure in gland under the action of the roentgen ray and radium Phagocytosis by large cells with vesicular nuclei was more in evidence in tissues that had been raved than in those removed before treatment

In discussing their cases the authors divide them into three groups Group 1 comprised one case of distinct Hodgkin's disease and two suggesting a tuberculous origin Under the influence of the roentgen ray and radium the degree of fibrosis was the most conspicuous feature but the practical disappearance of large endothelial and Reed cells was definite Group 2 included two cases which although differing radically in a clinical sense presented tissue with many similarities both before and after roentgen ray treatment The effect of the treatment was to reduce the number of small mononuclears in the lymph nodes but there was no essential change in the anatomy of the individual cells Fibrosis however was not at all a prominent feature in the microscopic sections of these particular glands even fine perivascular intercellular and capsular connective tissue increase was missing The two cases in Group 3 were similar in some respects but differed radically in others They were both somewhat sarcoma like The effect of irradiation in these was in the nature of a fibrosis and a change in the type of cell

In conclusion attention is drawn to certain features which stood out prominently The first was the character of fibrosis in lymphogranuloma and the disappearance of the large endothelial cells in this process The swollen reticulum and endothelial cells of the leukaemic hyperplasias were not reduced but were made more visible possibly by an increase in the number of the latter The lymphocytes in these conditions were not appreciably altered by the roentgen ray but were reduced in number In the lesions suggesting sarcoma in which the endothelial cells were not prominent in the original picture they did not become more visible under roentgen ray treatment The principal cells were greatly changed in both arrangement and character Fibrosis in the lymphogranulomatous



varieties was much more voluminous than in the leukemic and neoplastic. Fibrosis did not seem to increase between the cells after treatment when it was present in this location before radiation. The statement made by other writers that normal structure does not return in an abnormal lymph node under the action of the roentgen rays was fully confirmed.

The bearing of these findings upon the classification from which the lymphatic names were taken is simple and limited. The lymphogranulomatous processes, both the true tuberculous or of the Hodgkins variety, belong together and the reaction to the antigen varies distinctly different from that of the leukemic and lymphatic hyperplasia. There are essential differences between the latter notably in the character of the large endothelial cells but the particular elements of neoplastic hyperplasia are much more susceptible to change of anatomy than are the cells of the leukemic growths. Tumor cells undergo a rapid and completely change in shape while lymphoid cells retain nearly normal position and may vary little or none in their staining qualities.

ADAM HARTUNG, M.D.

Jas enetzki Woino W. The Topography of the Inguinal and the External Ilia Lymph Nodes and the Technique of Their Excision (Die Topographie der Inguinal- und externen Iliakal-Lymphknoten und die Technik ihrer Exzision). *Tk i k H J* 9 3

These incisions were made on sixteen cadavers. Nothing new was found with regard to the inguinal node. Of the external iliac node the largest and most constant lies on the surface of the external iliac artery in an oblique direction as it is and so that the iliac vessels frequently protrude under the inguinal ligament. At operation it must not be for-

gotten that the artery is crossed at this site by the deep circumflex iliac vein.

The second group of nodes lies under the inferior epigastric vein which must be drawn aside in order to reach them. As a rule these nodes lie upon the surface of the iliac pubis and usually number from one to three. If more are present which is rare they lie at a higher level lateral to the iliac artery and medial to the iliac vein in two groups. Accordingly the most constant of these nodes lie very low over the inguinal ligament and are in most intimate relationship to the inguinal nodes.

At operation the following procedure must be followed:

The skin incision beginning 3 cm. above the iliac crest is continued as a flat arc above the inguinal ligament carried across this structure above the femoral vessels and then extended downward to reach the superficial vein. After ligation of the veins the dissection is continued down to the superficial layer of the fascia to the inferior or cornu of the falxiform margin and the fascial fibrous are divided throughout their entire extent the femoral vein is dissected and the inguinal nodes are extirpated. An incision is then made under the inguinal ligament along the entire length of the ilium until the transversalis fascia of the ilium is divided and a wide approach to the iliac nodes is obtained. If this latter incision has been carried from the antero-superior junction to the pubic spine a wide approach is obtained to the inguinal vessels by drawing the inguinal ligament downward. If the incision is continued somewhat further outward if the internal iliac muscle is divided and if the umbilical ligament is divided medially it is possible to ligate easily the common iliac artery and the aorta and the hypogastric artery. In this way free exposure is obtained also of the position of the ureter lying in the pelvis and of the entire extent of the vessels of the ilium. (Z) HOLTZ (Z)

# SURGICAL TECHNIQUE

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

**Salwén G.** Intravenous Trypaflavin Therapy in Septic Conditions (Intavese Trypaflavin th rap e bei s pti chen Zust ende) *S e i s k a L e k a t d n g e n* 923 xx 49

Trypaflavin was tested in seven cases. As a rule only 20 c.c. of a 0.5 per cent sterilized and filtered solution were given at a time and at the most twice on two successive days. Care was taken to prevent the entrance of the solution into the surrounding tissues where it would cause necrotic abscesses which heal with great difficulty. Whenever the veins could not be reached they were exposed. The cases treated were the following: (1) a beginning septic pneumonia with a suppurative hematoma and severe hemorrhage; (2) a resolving septic pneumonia following puerperal fever; (3) gangrenous erysipelas of the perineal region; (4) phlegmons on the forearm; (5) facial erysipelas; (6) a furuncle of the upper lip with phlegmons; and (7) acute osteomyelitis.

In all of the cases the temperature receded almost immediately after the injection and a cure resulted. **POOR (Z)**

**Munk J.** Magnesium Sulphate Enemata in Tetanus (M g s u m u l f t p e C l y s m a b i T t a u s) *V e r h M d s d s h G e s e k* 93 x 492

In a case of tetanus neonatorum an enema of 0.5 per cent sulphate of magnesium in addition to the use of tetanus antitoxin was found very effective. Prompt recovery followed.

Magnesium sulphate enemata were first administered in the treatment of tetanus by Feer of Zurich. **Koch (Z)**

**Llenthal H.** Carrel Dakin Treatment—An Improvement in Adjusting the Tubes in Surgical Wounds. *M i s s g* 93 11 62

In a new method devised to keep Dakin's tubes in place during the irrigation of large surfaces such as the chest wall the tubes are inserted through the meshes of paraffin gauze in at least two places and the gauze is fastened over the wound.

**MARCUS H. HOBART M.D.**

## ANÆSTHESIA

**Baumann E.** Anæsthesia Problems (Z r v r k e n f a g e) *Z t a b l f C t* 923 18

The author believes that most of the fatalities occurring during or after anesthesia and especially late fatalities are attributable to the use of an anæsthetic which had undergone deterioration. Chemical examinations have shown that especially

in ether decomposition processes rendering the gas unfitable for the induction of anesthesia occur very readily. Therefore anæsthetic substances should always be used fresh from the original containers and should not be mixed or saved in open bottles and the anæsthetist should make it a practice to establish the purity of the anæsthetics he uses. The tests for ether are the Jönsson and Nessler tests and those for chloroform the Langgaard and silver nitrate tests. The author gives the details of these tests in detail. **HARMS (Z)**

**Rapoport B.** Observations on Anæsthesia with a Report of 1500 Consecutive Cases. *B o s t M e d S J* 193 c l x x 169

The author applies the principle of preventive medicine by adapting his technique to the requirements of the particular case, not only in the selection of the anæsthetic but also in careful pre-operative medication and preparation. His experience has extended to all the usual anæsthetizing agents. He concludes that while each has its particular indications, ether still remains the most satisfactory anæsthetic for general use.

**G. R. McALLIST M.D.**

**Chevassu M.** Accidents from Anæsthesia Induced with Nitrous Oxide. The Pre-operative Determination of Renal Function (A propos d'accident de l'anesthésie au protoxyde d'azote laparotomie préopératoire du foie tonement renal) *B u l l e m e m S c d c h i d P r* 1923 x l v 393

The causes of death from nitrous oxide anesthesia are:

1. Cerebro-meningeal hemorrhage in cases of hypertension. Nitrous oxide greatly increases the blood pressure.

2. Infection. This may play a part in serious accidents but seldom acts quickly enough to cause trouble during anesthesia.

3. Poisoning from impurities in the nitrous oxide such as carbonic acid and nitrogen peroxide. In one case in which death resulted 22 per cent of carbonic acid was found in one of the cylinders. Cousin, pharmacist to the Cochin hospital in Paris discovered that many cylinders contained considerable quantities of carbonic acid; thereafter all cylinders were tested before delivery to the hospital. Nitrogen peroxide is more dangerous than carbonic acid gas.

4. Slow asphyxia. This is rare when the gas is given by a skilled anæsthetist. Nitrous oxide anesthesia is difficult because it constantly borders on asphyxia. Postoperative glycosuria has been stated by Or to bear a relation to asphyxia during anesthesia.



# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

**Perthes** The Biological Effects of the Roentgen Rays (D. biolog. shen Wurku gen der Roentgenstrahlen) *St. ähnthe op e 1923* v 738

The author discusses the destructive action of the roentgen rays following a brief review of the development of X ray therapy. A difference between X ray burns of the skin and ordinary burns is indicated by the latency greater pain and lesser tendency toward healing of the former. Microscopic examination of an X ray burn shows vascular changes and injury of the connective tissue as well as the epithelium. Injury of the gonad and the blood forming organs is also found. Death from the effects of the X ray is very rare.

In the treatment of malignant tumors the X ray shows a destructive action characterized by interference with cell division. Especially the nucleus is injured.

The author discusses also various theories regarding the stimulating effects of the X rays particularly upon tumors and the endocrine glands. The selective action of the X ray and the specific susceptibility of various tissues and tumors have been demonstrated beyond doubt. In conclusion Perthes discusses changes in the susceptibility of the cell through previous raying and the relationship of the biologic effect of hard and soft rays to the wavelength. These problems can be solved only by practical biological tests. Especial importance is attributed to the latency of the ray action. It is surmised that the rays initiate a chemical process which persists for a long time.

SILBERBERG (Z)

**Hoffmann** V. Stimulation and Paralysis of Animal Cells by Means of the Roentgen Ray. II. Experimental Research on the Growing Bones of Rabbits and Cats (Über die Wirkung der Röntgenstrahlung auf die Zellen der wachsenden Knochen bei Kanarienvögeln und Katzen) *St. ähnthe op e 1923* v 56

The experiments were carried out on thirty six rabbits and twelve cats by means of homogeneous hard roentgen rays. The voltage was 180,000 the amperage in the secondary circuit 1.8 ma the filtration 0.5 mm of zinc and the focal distance 23 cm. The skin erythema dose was reached in thirty five minutes. In most instances a leg was rayed below the knee.

Small doses caused stimulation. At the end of four weeks the tibia exposed to the roentgen rays was about 2 mm longer than the tibia on the unexposed side. This growth increase was maintained for from three to five weeks. After three months the two sides were again equal.

In the histologic picture the epiphyseal line was distinctly broader the columns of cartilage cells were closer together the epiphyseal center of ossification was larger and in the diaphysis the bony trabeculae were stronger and contained more lime than in the control. This result was obtained with rays varying in quantity from 10 to 20 per cent of the skin erythema dose. When 5 per cent of the skin erythema dose was given no result was demonstrable. Twenty five per cent of the erythema dose caused distinct damage in every case frequently it checked growth so that at the end of eight weeks the exposed tibia was from 2 to 4 mm shorter.

It was impossible in these experiments to trace any regularity in the stimulation of growth by small doses of roentgen rays. When the dose was distributed over from two to four weeks the increase in growth was usually the same as when one application was given but more certain. When 25 per cent of the skin erythema dose was given a paralyzing effect was often noted. In older animals this always followed 40 per cent of the skin erythema dose.

At the end of three weeks the growth of the rayed bone was found to be retarded. The difference in length between the rayed and unrayed sides became progressively greater over a period of months until the growth of the animal was complete. In other cases a partial reparation set in and after several months the difference in length became gradually less. In the microscopic picture the cartilage cells were far apart. The process of calcification was retarded but degeneration or necrosis of the cells did not set in.

The roentgen dosage which is sufficient to stop growth is many times greater than that which is the first to produce distinct damage. The toxic dose and the lethal dose of the roentgen rays lie far apart.

In the experiments with scattered doses it was found that the full effect was obtained but appeared late. When the conditions of life were altered in such a manner as to retard the growth of bone factors were observed which diminished the effect of the roentgen rays. After cessation of influences which checked growth such as narcosis or paralysis of the limb caused by the injection of alcohol into the sciatic nerve the roentgen rays again became effective though often not until months had passed. Therefore the sensitivity of the bone to the rays persisted and was diminished only so long as the internal vital conditions continued unfavorable to the cells.

Experiments regarding the effects of the rays after the extirpation of endocrine glands yielded no definite information.

The experiments on fractured bones confirmed Salvetti's finding that after roentgen stimulation the formation of bony callus is at first stopped and the

formation of cartilage cells becomes more active. Therefore stimulative doses should be applied only when union is delayed.

As to the period of latency, the experiments teach that the result of the application of the rays is dependent on the ability of the affected part to react. Radio-sensitivity is a property of the cell (of the nucleus) which remains unaltered even when the vital processes are high or under the influence of environment. It remains temporarily or permanently altered.

HASUMI (2)

**Nather and Schlin.** Animal Experimentation with regard to a Roentgen Stimulating Dose in Carcinoma (Tumor) of the Esophagus. *Ergeb. d. Röntgenstrahlentherapie* 9:3, 1935.

The authors compare the use of carcinoma in rats with and without serum for various lengths of time with regard to the rapidity of its growth and their weight and the length of the life of the mouse. On the basis of the results in more than 200 mice, they find the animal's ability to undergo stimulation as far as mouse carcinoma is concerned. Brock (2)

**Mertens.** The Diagnostic Use of Serum from Clinically Pathological Treated with Roentgen Rays and a Discussion of the Action of the Ray. *Ergeb. d. Röntgenstrahlentherapie* 9:3, 1935.

In the blood of a carcinoma carrier whose tumor decreases under the influence of the roentgen rays their appearance is highly productive of a violent reaction when the serum is injected into a healthy mouse. The reaction persists for a time, although without any sign of hemorrhage. Mertens concludes from this observation that the destruction of the tumor causes the formation of a protein substance, the integration of living cells in the circulation. The same process probably occurs when a tumor disappears with uterine growth through the skin. When the skin remains intact the tumor substance must enter the circulation directly or be absorbed into the blood. Such substance must be present in the blood of patients whose tumors are regressing, indicating the roentgen ray probably makes available in the circulation a greater number of cells for the formation of protein substances.

COLLEY (7)

**Hilzenrat, G. A. R.** Review of the Present Status of Deep Roentgen Therapy. *Am. J. R. 9:3, 1935.*

In the field of therapeutic radiology, the subject of the generalization of the body of the patient to the point of the power of the rays, the question of the proportion between the acid and the alkaline substances.

depth are considered. This conception omits nothing comprises all effective factors, the kind of primary radiation, the focus skin distance with its well known significance, the portal of entry with its scattering effect and the quality of the body. For practical purposes it seems advisable to formulate two additional special dosologic conceptions, the limitless variety of the respective factors necessitates concrete premises. The special conception of the percentage deep dosage is based on the focus skin distance of 23 cm. at a depth of 1 cm. and a portal of entry of 6 to 8 cm. If the size of the portal of entry is left out of consideration, the conception of the effective dose becomes amplified. Moreover, if the focus skin distance and the depth are left without a special determination, the result will be a measure which has been discussed as the utility factor. The latter changes from place to place on the irradiated body, which may be imagined as being filled with the numbers of the doses. The doses may be thought of as intensities which are effective at any instant or in any unit of time. If these are summed up during the course of a radiation on the surface energy, the intensity is distributed and obtained in a rewritten expression of the quantity of roentgen rays in the body.

Investigation of the biological size and its formation has been less successful. The conditions destructive dose, paralyzing, stimulating dose, skin unit dose, carcinoma dose, ovarian dose, tuberculous dose, etc. have all been found wanting for practical purposes. The all are of importance in working hypotheses from which the investigation proceeds and all are left for practical purposes none of them seems to be available. It is especially true that the concept of effect of stimulation. Experience has taught that it is the particular form of tumor which determines whether the treatment will be successful or not. Some tumors react favorably, whereas others are refractory in spite of refinement of technique.

In order to simplify matters the manifold afflictions may be arranged into four groups, namely those that require a very large quantity (this group includes only the carcinoma), the comatous and certain other afflictions requiring a considerable quantity, those requiring a medium quantity, and those requiring a small quantity.

WOLFE II RECH. M.D.

**Millwee, R. H.** Further Observations in the Use of High Voltage X-Ray Therapy. *Am. J. R. 9:3, 1935.*

Millwee reviews the subject in a more general way, touching only incidentally on the local and not on the result. The hundric cases have been treated including malignancy of the part of the body, but most of them cases of malignancy.

nancy of the cervix the prostate gland the breast the neck and the face With possibly three exceptions all of the cases showed some improvement In 50 per cent the improvement has been very marked and in most cases the original malignancy has apparently disappeared

None of the patients has been injured by the treatment. The most serious ill effects were a few uncomfortable skin reactions. Certain cases which appeared hopeless have responded most decidedly while others with less marked involvement have reacted very poorly. Neither was the type of lesion any indication of the outcome of the treatment. In some cases a type of lesion supposedly very sensitive to radiation did not respond at all while in others a lesion supposedly very resistant to radiation responded very well.

In Millwée's opinion high voltage ro ntgen therapy is a distinct advance in the treatment of malignancy as well as in that of certain non malignant cond tions as it some times gives results which cannot be obtained by any other method

MOORE said he based on 214 cases 170 of which were cases of malignancy. He credits three fatalities directly to the treatment and believes that in three others it was an important contributory factor. He gives detailed descriptions of many of the cases treated and discusses the results obtained. He prefers to give the treatment in divided doses generally one hour daily until the total dosage decided on has been reached. This method he regards as far less trying than the single massive dose and equally efficient. On the basis of his experience he draws the following conclusions:

1. There is no inherent superiority in so called high voltage ro ntgen therapy over the older method or over the employment of radium save that it is far more efficie t

2. Experience in treating 214 cases over a period of six months would indicate that the earlier of the two cases derived sufficient benefit to make this the therapeutic agent of choice.

3. Even in advanced cases the relief of pain and the sometimes a tonishing subjective improvement brought about by this method of treatment could indicate its application on regardless of the hopelessness of effecting a cure.

D. Y. and J. P. KEITH state that they have treated 130 cases by deep therapy with the latter's method and give detailed tabulation of the anatomical location and the nature of the lesions. The results are cited briefly and the histories of four cases are repeated in detail. Reference is made to the technique used and the general case given during the treatment. The detailed dose method is specified. As a rule, not more than one hour's application is given at once and this is repeated after an interval of forty-eight hours.

In the operative cases the tumor appeared much more rapidly than when the electrocoagulation method of treatment was used. The immediate palliative results in the hopeless cases were noted

more quickly. In the breast cases with metastasis in the axilla and the supra and infra clavicular glands the metastasizing nodes began to disappear within four or five days—much more rapidly than formerly. Breast tumors without metastasis receded faster than metastatic nodules or postoperative recurrent nodules. Progress has been made also in the control of recurrences. In some of the inoperable cases in which metastasis had begun the reduction in the size of the tumor was so great and the general condition was so decidedly improved that operation became possible. A few cases treated without or before surgery indicated that the patient is benefited more by pre operative than by postoperative radiation.

ADOLPH HARTUNG, M.D.

ADOLPH HARTUNG M.D.

## Iatzko W Roentgen Injuries and Deep Therapy

228 W. Koenigsen: Injuries and Deep Throat  
(Poentgen'schen und Tiefenthroat) W.  
kl. Wochenschr. 1923, v. 95

A series of purely technical sources of error are cited which are not necessarily dependent on deep therapy as such. A skin field which has been intensively irradiated must never be reirradiated before six months because the endothelial cell of the cutaneous and subcutaneous blood vessels require that length of time for their restitution. The carcinoma dose is an empirically determined average dose. Success has not been achieved in cases of non-gynecological carcinoma because we have been unable to eliminate the injurious effects of the rays. However, this must be attempted not by decreasing the therapeutic dose but by increasing it and an increase can be achieved only by improving the technique. At the present time the author is endeavoring to restrict the severe injuries of the circulating blood by elastic constriction of the blood vessels in the lower extremities during the irradiation.

DE SECKER (7)

Mahnert A and Zacherl H The Treatment of  
Breast-tumors with Heparin and Sal

Roentgen Into lation with Hypertonic Solu  
 ti ns and a Discussion of The r Action (D  
 B h nall g d Roentgen k t a m t hypert h n  
 Loe u ge Z gl ) es B tr g Frage th  
 W ku g) H kl H ch sch 9 3 xxi o

The authors attempted to relieve the symptoms by giving intensive irradiations by the intravenous injection of 400 cm. of a 25 and a 40 per cent glucose solution. The symptoms which include uneasiness, vertigo, nausea or vomiting ceased in from one half to one hour. Prophylactic injection were of no avail. Hypertonic sodium chloride solutions (Hofer and Sietmann) also relieve the vertigo.

The administration of hypertonic solutions causes a current of fluid from the tissues into the blood. The factors of importance are the change in the water economy of the organism, the admixture of alkali with the blood, and the effect on the protein metabolism. It is these processes which undergo decided changes during roentgen irradiation.

ZIPPER (Z)

formation of cartilage cells becomes more active  
Therefore stimulative doses should be applied only  
when union is delayed

As to the period of latency the experiments teach  
that the result of the application of the rays is  
dependent on the ability of the affected part to react  
Radio sensitivity is a property of the cell (of the  
nucleus) which remains unchanged even when the  
vital processes which are under the influence of en-  
vironment become temporarily or permanently al-  
tered

HAUMA. (Z)

Nather and Schinz Anim Expiment tion with  
Regard to a Roentgen Stimulating Dose in  
Carcinoma (Tumor) F. G. d. R. e. t.  
F. n. i. do. bei C. r. c. i. n. o. m. F. o. t. i. k. d. G. b. d.  
R. t. g. l. 9. 3. 9

The authors compared mouse carcinomata raised  
with and without a screen for various lengths of time  
with regard to the rapidity of their growth and their  
weight and the length of the life of the mouse. On  
the basis of the results in more than 200 mice they  
deny the admissibility of roentgen stimulating dose  
as far as mouse carcinoma is concerned. Beck (Z)

Mertens V. E. The Diagnostic Use of Serum from  
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gen Rays and a Discussion of the Action of  
These Rays (Ueber die diagnostische Wirkung  
des Serum bei Krebskranke) K. r. e. b. s. k. k. d.  
u. b. l. W. k. g. d. R. g. t. h. l.)  
D. t. k. Z. k. f. C. k. 9. 3. 1. 6

In the blood of a carcinoma carrier whose tumor  
decreases under the influence of the roentgen rays  
there appear substances which produce a violet spot  
when the serum is injected intracutaneously into  
carne of similar carcinomata. The discoloration  
persists for a time and then disappears without any  
sign of hemorrhage. Menten concludes from this  
observation that the destruction of the tumor causes  
the formation of protective substances by the dis-  
integration of living cells in the result. The  
same process probably occurs when a tumor dis-  
appears without breaking through the skin. When  
the skin remains intact the tumor substance must  
enter the circulation and protective substances must  
be formed. Such substances must be present in the  
blood of patients whose tumors regress under  
raying. The roentgen ray probably makes a dif-  
ference in the circulation on a greater number of cells for  
the formation of protective substances.

COLLEY (Z)

Holznecht G. A Review of the Present Status of  
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9. 3. 476

In the use of the term physical dose in its  
strict sense no consideration of the body re-  
sistance or of the manifestations exhibited during  
the passage of the rays through the body, only the  
density and penetrative power of the rays, the  
quantity of dosage and the proportion between the  
incident radiation and the reaction at any

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High Voltage X-  
More S. High V-  
Month E. perle  
Keith D. Y. and Kei-  
the Use of Deep Ti-  
S. H. M. J. 9. 3.

MILLWEE considers the  
general way touching  
and not on results  
been treated including  
part of the body but m-

one hundred and ninety eight in the joints seventy one in the glands seventeen in the genito urinary tract and the rest distributed in various tissues. The bones most frequently attacked were in the order of their involvement the femur sternum tibia and sacrum. The cranial bones were involved in thirteen of the 227 cases.

Of the joints those most frequently involved were the vertebrae (fifty seven of 108 cases). In thirty five of the fifty seven cases of vertebral tuberculosis the lesion was found in the lumbar spine. In no case was there any sign of extraspinal abscess but paraplegia was present in seven. Besides local treatment these patients were subjected to general helio aero therapy and forced feeding especially with milk. Only one was operated upon.

The author states that most excellent results have been obtained in the treatment of cold abscesses with hypertonic saline solution. W. A. BRENNAN

### DUCTLESS GLANDS

Elzas M. Mediastinal Tumor. The Recognition of Eunuchoidism (Mediastinal tumor. Beitrag u. K. ins m. Eu. chodismus). *Arch. f. Ch.* 1923 LXVIII 1614

A 28 year old man was admitted to the hospital complaining of pain in the right side of the chest suggesting pleurisy. Careful examination revealed sympathetic irritation in the left eye and dullness in the region of the heart. A shadow in the roentgen ray plate suggested a double heart. The blood count showed 5 per cent eosinophiles. The complement fixation test was weakly positive for echinococcus.

Besides these findings definite signs of eunuchoidism were present—diminutely developed breasts, a smooth skin, a horizontal pubic hairline and underdevelopment of the penis and testicles. Because of the relationship of the thymus gland to puberty the conclusion was drawn that the internal secretion of the mediastinal tumor stood in a causative relation to the underdevelopment of the genital organ. The further course of the patient's condition verified this assumption.

At the first operation performed with the positive pressure apparatus of Zaajer the right side of the chest was opened. Behind the parietal pleura next to the vertebral column a tumor the size of a man's fist was found. The lung, as not involved. Histological examination showed the tumor to be a teratoma.

At a second operation the growth was entirely removed. It measured 11 x 8 x 6.3 cm. Its structure resembled that of ovarian tissue.

In the course of a month following the operation the hair distribution became more masculine, the breasts smaller and the testicles larger.

This case is of great importance in explaining eunuchoidism. It shows that the latter may be divided into a primary form with changes in the genital organs themselves and a secondary form

caused by disturbances in other organs particularly the glands of internal secretion. The quiet manner and the reserved character of the patient were striking.

The author was able to find the reports of sixty nine cases of mediastinal tumor in the literature. In fourteen the diagnosis was made during life.

When possible the treatment should consist of radical removal of the tumor. In eight cases in which this was done there was one fatality.

DEUCKER (Z)

### SURGICAL PATHOLOGY AND DIAGNOSIS

Theilhaber A. and Rieger H. Cellular Immunity and Susceptibility to Disease (Celluläre Immunität und Krankheitsdisposition). *Deutsche Zeitschrift f. Ch.* 1922 CLXVIII 78

This article treats of the rôle played by cellular immunity in tuberculosis, atheromatosis, cancer and chronic diseases of the joints. Cellular immunity depends on the richness in cells of the connective tissue, particularly the presence of young fixed tissue cells and lymphocytes. It is well known that tuberculosis is more malignant the earlier in life it develops. According to the author the reason for this is not that latent infections in youth confer a certain immunity, but that the richness in cells in the connective tissue of the lung is doubtless much greater in advanced age than in youth, since the continual inhalation of dust is a constantly repeated stimulation to new cell formation. On the other hand the occurrence of atheromatosis in advanced age is dependent on the decrease in the cellular content of the vessel walls whereby injurious material circulating in the blood (the authors are thinking here particularly of uric acid) obtain the opportunity to penetrate into the vessel walls which are no longer sufficiently protected by the cells. Wearing out is considered a factor of less importance.

Cancer is explained in the same way. First the connective tissue becomes poor in lymphocytes and fixed tissue cells, thus removing a natural barrier against epithelial proliferation and permitting a secondary malignant growth of the epithelium. Hence the frequent appearance of cancer in scars which are poor in cell and in age in which the tissues are poor in cell as compared with the tissues in youth.

The increase in susceptibility to chronic joint diseases, particularly gout in advanced age may be explained on the basis of qualitative and quantitative changes in the cellular content of the joints. Youthful cartilage and synovial membrane which are very rich in cells possess numerous defensive materials which prevent the penetration into the joints of injurious substances such as uric acid.

A decided decrease in cellular immunity explains also general atheromatosis.

If these theories are correct it follows that in the treatment of the conditions under discussion an



increase in the cellular immunity that is an increase in the production of lymphocytes and fixed tissue cells must be sought. The organism attempts to obtain this through acute inflammation. In diathermic treatment the action of dry heat we have a method of imitating this reaction. Diathermic treatment of the entire skin and of the broad cavities of the lymphocytes such as the spleen and the intestinal follicles has sometimes given very good results.

Injections of extracts of spleen and thymus into the gluteal region may be considered. Small doses of the roentgen rays and venesection have also had a good effect on the new formation of the cells in question.

In a number of cases of carcinoma of the uterus in which only vaginal removal had been done and it was certain that lymph nodule metastases remained intensive after treatment of the type described was followed by disappearance of the metastases and absence of recurrence for more than five years.

LEMKER (Z)

Hueper W. Histologic Changes in Human Tissue After the Injection of Paraffin (Ueber die histologischen Veränderungen im menschlichen Gewebe nach Injektion von Paraffin). *Fortschr. d. Path. u. Anat.* 1923 XXIV: 268.

The author studied two paraffin deposits in the breasts which were made twelve years previously and were removed because of unbearable pain. Most of the paraffin was still present and had separated into smaller parts only partially. There had been little decomposition or spreading of the mass.

Such a mass is split up by giant cells and mononuclear epithelioid cells which grow into the paraffin clumps and form spaces. These spaces are largest in the center and smallest at the periphery. The cells producing the demarcation are the pacemakers for the fibrillary connective tissue which finally becomes sclerotic and encloses the foreign body. A substance in the paraffin clumps, the tissue spaces and the cells which can be stained with Sudan is due not to decomposition and chemical change in the paraffin but to the admixture of vaseline.

BUDDE (Z)

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NOTE—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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D et cul  
ASOL M Th Cl ic H ctu f L ti Le f  
th Bladl r  
ST RUS I lath l g al l Cl cl St l s f  
I ph mat f Car mat f th Un y  
H d l  
YEN H H nl c r r W W Th ke It Ob-  
t d by Va u M tl l ntle l atm t f  
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I An Antisept I y l a r n y M l m  
MOYON H H f m p o r s p y f Un  
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J V F H Th I t a c Inj ct f l l r  
m Ch m vst py  
O CO O V J l u th Obse t on th Blood  
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## EDITOR'S COMMENT

**O**PERATIONS on the sympathetic nerve continued to excite the imagination and interest of European surgeons. Leriche reports the result at the end of a year's time of sympathectomy of the hypogastric artery for kraurosis vulvæ (p. 127) and the prompt and permanent healing of a perforating plantar ulcer after perifemoral sympathectomy in a patient with a divided sciatic nerve (p. 98). He suggests the application of the operation of sympathectomy under certain conditions to veins (p. 133). Gianolla suggests section of the nerve innervating the stomach (p. 106) in cases of hyperactivity and hypersecretion and division of the nerves in addition to resection of the lesion in the treatment of gastric ulcer.

As time goes by we are able to secure a clearer and more definite conception of the results of the roentgen and radium treatment of malignancy, particularly of malignancy of the uterus by reason of its frequent occurrence and its accessibility. In this month's issue of the *ABSTRACT* a number of reviews touch on this important subject. Faure of Paris gives a statistical survey of 152 cases (p. 13) including 102 cases operated upon. Of these three patients who were operated upon more than a year previously, forty-two were well. In six of the forty-one others recurrence developed from four to six years after the operation.

Monod and Goet (p. 12) report the results in thirty cases treated by surgical method supplemented by radium. Of particular interest in the case was the duration of the preliminary application of radium—four or five days. Donaldson and Cantu report the results of radium treatment in fifty cases under prolonged observation at St. Bartholomew Hospital, London (p. 14). Their conclusions are of particular interest by reason of frequent postoperative examination of both the patient and the irradiated cervix. Leveuf and Godard's study of the lymphatics of the uterus (p. 122) is of timely interest in connection with the subject of malignancy.

With reference to X-ray and radium treatment in general and the method of action and effects of the reagents a number of interesting and important articles have appeared recently. Nakahara's studies of the fate of cancer grafts in an X-rayed area (p. 102) brings out a definite negative fact with reference to the action of

roentgen rays. The existence of a stimulating effect of the X-ray—an assumption upon which a great deal of X-ray treatment has been given in recent years—was denied by both Holzknecht (p. 161) and Iordes (p. 161) in discussions at the recent international congress of roentgenologists and radiologists in London. The results of roentgen treatment of a number of surgical conditions observed at the Tuebingen Clinic by Juenemann (p. 167) and new methods in the treatment of malignancy including the use of thorium X in absorbable containers described by Kupferberg (p. 166) are of particular interest to workers in this field. The results obtained by Seyerlein and Hoelzel in the treatment of sarcoma at the Wuerzburg Clinic (p. 168) should bring a ray of encouragement to the surgeon confronted with similar conditions.

A symposium on puerperal infection (p. 133) by various authors reported from the Congress de l'Infirmerie puerperale at Strasbourg, a clear-cut picture of the syndrome of ectopic pregnancy by Polak (p. 130) the result of copolamine morphine anesthesia in the third thousand cases at the Barnes Hospital, St. Louis reported by Schwarz and Krebs (p. 130) and the results obtained by sacral nerve block anesthesia in obstetrics by Bonar and Meeker (p. 131) form an interesting and important group of reviews for the obstetrical surgeon.

The results of arterial transplant reported by Birt (p. 154) and by Klotz, Lermar and Guthrie (p. 154) the use of dead serous grafts in covering raw peritoneal surfaces described by Mauchaire (p. 108) the results of the use of ether in the peritoneal cavity of animal observed by Naujoks (p. 104) and the results obtained by William on in homogenous transplantation of the kidney (p. 130) indicate some of the interesting lines of surgical research that are being developed both in Europe and America.

The entire section on the surgery of the gastrointestinal tract and of the liver in this month's issue of the *ABSTRACT* filled with interesting and stimulating reviews. Glaucoma, varix of the oesophagus, goiter, lymphorrhæa following breast amputation, fractures of the external condyle, laminotomy for the paralysis of Pott's disease are subjects that can be only mentioned. Their interest and significance will be apparent to the most casual reader.

# INTERNATIONAL ABSTRACT OF SURGERY

FEBRUARY 1924

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### HEAD

Phillips W. C. The Diagnosis and Treatment of Septic Sinus Thrombosis. *J. A. M. A.* 923  
1 1 633

Septic erosion of the inner table of the temporal bone occurs most commonly in the tegmen or about the knee of the sigmoid sinus. Septic thrombosis within the sinus is rare considering the frequent exposure to infection of the overlying dura.

Thrombosis and thrombosis of the lateral sinus or internal jugular vein may result from (1) an anatomical bony opening in the parietal wall (2) the direct extension of a purulent bone lesion (3) involvement of the smaller vein of the diseased bone or (4) disease of the intermediate anastomotic veins in the thrombotic area.

The diagnosis of septic sinus thrombosis is based upon ear infection, bacteremia, a septic temperature, chill and nausea. The temperature curve is similar to that of erysipelas with delayed surface manifestation. Extensive postoperative nervous pelatous cluities of the scalp begun with a sudden rise in the temperature and a full suggestion of sinus involvement. The diagnosis of atypical cases requires exhaustive study by all known methods. If general symptoms of septicemia do not appear, these and even typical cases may recover without operation. However, a high temperature for several days after mastoid operation especially when it is associated with necrosis of the bone over the lateral sinus, bacteremia, leukocytosis and a high polymorphonuclear percentage and when there are no other complications calls for exploration of the sinus. The presence of necrotic or sloughing spots on the sinus wall, strong evidence of blood stream infection. Sinus pulsation may continue after a large clot is formed. Abolition of pulsation and a doughy consistency on pressure suggest a thrombus. The localization of the thrombus in bilateral mastoiditis is difficult. The author exposed both sinuses for inspection, palpation and aspiration. If

no blood was withdrawn the sinus was considered thrombosed. If blood was aspirated it was cultured to determine which side showed the highest bacteremia. After diagnosis the complete operation was performed.

In the author's opinion treatment by repeated blood transfusion from properly matched donors is of very great importance. Children may be given from 100 to 400 c.c.m. and adults much larger quantities. In two or three days the transfusion may be repeated. A number of undoubted cases of lateral sinus thrombosis occurring in bilateral mastoiditis have been reported in which reliance was placed on transfusion in preference to operation.

The author ligates the jugular vein in its lowest portion rather than above the facial branch and prefers this to complete dissection because it is simple and quick and just as effective. The vein should be doubly ligated and divided. The ligation wound heals promptly and with less debris than a resection wound.

A postoperative lateral sinus complication is the accumulation of pus in the jugular bulb. If necessary the bulb region may be opened freely from the mastoid wound. The sinus is incised and packed after the clot has been removed.

Balan and Chappay describe the anastomotic channels for venous return from the cranium as follows:

1. The foramen magnum plexus (the uppermost spinal plexus) anastomoses with the transverse occipital sinus in front and with the posterior occipital sinuses behind. The foramen magnum plexus or their collecting trunks, the vertebral and posterior jugular veins anastomose with the posterior condylary vein and with the mastoid emissary vein. The communication here is so extensive that it will carry the blood of the entire skull after ligation of both jugular veins. In the fetus and the newborn infant the cranial surface of the lower half of the occipital bone is covered with a network of

large veins which carry the blood from the torcular herophili to the jugular. With development these veins become o capital sinuses.

2 By the ophthalmic vein and its branches the blood may enter the facial and temporal veins.

3 The middle meningeal veins communicate with the superior longitudinal sinuses and the pterygoid plexus.

4 Innumerable accessory connections are formed between the origin of the external jugular, the facial portion of the internal jugular, and the origin of intracranial veins everywhere over the vault and the base of the skull. WALTER C. BURKET, M.D.

**Bonnet and Michon. Epithelioma of the Cheek Treated with Radium Needles** (*L'Union Médicale* 1923, 11, 339). *L'Union Médicale* 1923, 11, 339.

In the case reported a large ulcerating tumor developed on the mucous membrane surface of the cheek and during the course of a year eroded it, as through the cheek. Several hemorrhages occurred from involvement of the facial artery.

Eight needles each containing 4 mgm. of radium were inserted into the growth and allowed to remain in place for seven days. Fifteen days later the mucous membrane ulcerated and progressed greatly and only a small scar was visible terminally. Microscopic sections proved the diagnosis of epithelioma.

It is pointed out that if the lymphatics are involved, which was not true in this case, metastases in these structures are very much more resistant to radium than the primary lesion.

LOUIS DAVIS, M.D.

## EYE

**Morgan J. A. Ocular Disease from Nasal Accessory Sinus Involvement** (*J. Ophthalmol.* 1923, 11, 737).

Morgan reports four cases which he summarizes as follows:

CASE 1. Retrobulbar optic neuritis with central scotoma and marked deterioration of vision due to ethmoid disease and chronic tonsillitis. No eye ground changes.

CASE 2. A retrobulbar case due to disease of the maxillary sinus.

CASE 3. Extrabulbar muscle involvement due to disease of the maxillary sinus. No apparent involvement of the optic nerve.

CASE 4. A retrobulbar case with hyaloid degeneration and extensive sinus disease. THOMAS D. AVERY, M.D.

**Doyle P. G. Tournay's Reaction** (*Brit. J. Ophthalmol.* 1923, 11, 42).

Doyle examined forty cases of general paralysis in the insane to determine the presence of Tournay's reaction (choria being the rule in anterior fixation anisocoria, become the rule in lateral fixation). The reaction was present in fifteen absences in eighteen doubtful in four and unilateral in the

thirty of the subjects had. Argyll Robertson pupils in fourteen of the latter. Tournay's reaction was absent in four cases present and in one it was doubtful. VIRGIL WESCOTT, M.D.

**Holth S. and Berner O. Congenital Microphthalmia. Pinhole Pupil Owing to Developmental Faults of the Dilator Muscle** (*Brit. J. Ophthalmol.* 1923, 11, 4).

Holth and Berner report the occurrence of congenital microphthalmia in two sisters and a brother. The parents were consanguineous. The father also had small pupils but refused examination. Following the institution of atropine the pupils dilated poorly. There was no history of squint. The muscular balance for far and near was good. The youngest subject suffered with spasm of accommodation and headache. These were relieved by mydriatics. The girls were myopic and the boy was emmetropic. In the light vision was very poor. The pupils did not react to light or convergence. There was no pupillary membrane and no synechia. At postmortem examination the dilator pupillae and the inner limiting membrane were found defective.

The treatment of such cases consists in the use of mydriatics and iridectomy.

VIRGIL WESCOTT, M.D.

**Snyder W. H. The Etiology and Diagnosis of Glaucoma** (*Oh. St. M. J.* 1923, 11, 64). **Vail D. T. Concerning the Surgical Treatment of Glaucoma With Special Reference to a Modified Elliptical Craquelé Technique** (*Oh. St. M. J.* 1923, 11, 645).

SNYDER states that all cases of glaucoma have the same etiology. The condition is a dystrophy of the eye characterized anatomically by vascular and nervous degenerations and clinically by a hypersecretion following hypersecretion. Too much importance has been ascribed to age, arteriosclerosis, the size of the lens, and sex as etiological factors since chronic simple glaucoma is much more common in myopes and young adults than is generally believed. Cystitis as an etiological factor should be given more attention.

In suspicious cases glaucoma should be assumed until it is eliminated by test. The diagnosis will be confirmed by a positive history, usual refractive test, increased tension and changes in the blood spot or central scotomata. The signs usually considered pathognomonic of glaucoma occur late in the disease.

VAIL discusses the surgical treatment of glaucoma under four heads:

1. Acute inflammatory glaucoma characterized by the sudden onset of great pain, marked edema, chemosis, redness and rapid loss of vision. This is treated by a cocaine filter and the cure usually permanent.

2. Subacute inflammatory glaucoma characterized by exacerbations of hyper-tension with intervals of apparently normal vision and slight or no ophthalmic

microscopic evidences. Although eserine will abort each attack, operation should be performed before great damage is done. The Smith iridectomy is the author's choice of operation as it usually establishes normal tension.

3. Secondary glaucoma. This may or may not require surgical interference depending on its cause. In some cases of cyclitic paracentesis of the cornea may be necessary. After a needling or a traumatic cataract, corneal section with washing out of lens material may be indicated.

4. Simple glaucoma characterized etiologically according to Fischer and Lane by arteriosclerosis of the nutrient vessels supplying the globe of the eye and clinically by a gradual decrease in vision and fields without a corresponding increase in tension. This should be operated upon before it is too far advanced. The author gives the following rule: drop eserine solution into the eye sufficiently often to prevent hypertension so long as there is no further loss in visual acuity or in the field of vision but operate when eserine drops fail to control the tension and maintain the acuity and field of vision *in statu quo*. In the author's cases a modified Elliot La Grange scleral junction is trephined and the iridectomy done through this opening. The opening is then enlarged by means of a 3 mm. scissors cut from each side parallel with the periphery of the cornea.

MANFORD R. WALTZ, M.D.

Mann I. C. Some Suggestions on the Embryology of Congenital Crescents. *B. J. Ophthalm.* 1933 1: 359.

The cases considered are the crescents that are congenital, stationary, unaccompanied by degenerative changes, not necessarily associated with any one error of refraction, and most frequently situated below the disk.

In the formation of a crescent it is essential that the pigmented outer layer of the optic cup should not quite reach up to the insertion of the optic stalk as shown by ophthalmoscopic and microscopic study. The preponderance of inferior crescent is explained by the normal development of the disk with the choroidal fissure as the determining factor. There is a true anomaly of development of the edge of the disk not merely a oblique insertion of the nerve or atrophy of any of the layers. This anomaly occurs in the closure of the choroidal fissure there being an extension of the unpigmented inner layers of the optic cup along the edges of the cleft in the upper part. It may be looked upon as developmentally homologous with the caudal of bird and other animals in the normal human embryo the architectural basis of the caudal present though small.

All congenital crescents have in common the failure of the pigment to reach the edge of the nerve and the failure of the choroid just beyond the edge of the pigment. There is a definite relationship between the development of the choroid and pigment. Mesoderm develops into choroid when in contact with

pigment epithelium but not when in contact with the inner layer. When a localized failure of epithelium occurs in an area associated with an insertion of the optic stalk, one type of congenital crescent may be supposed to develop. This explains those congenital crescents not related to the choroidal fissure. The occasional atrophy of the sclerotic seen in crescents is explained by a relationship of the sclerotic condensation to the presence of choroid. Here the choroid is absent the sclera is inhibited.

MANFORD R. WALTZ, M.D.

Gifford S. R. and Cassidy W. R. Some Uses of the Slit Lamp. *A. J. Ophthalm.* 1933 3: 117-130.

In a case reported by the author a tentative diagnosis of retinitis pigmentosa was made but as there was a history of specific infection and the Wassermann reaction was positive the slit lamp finding of a very thin posterior synechia led to the conclusion that the retinal picture was that of a disseminated choroiditis due to syphilis.

Folds in the lens capsule following injury, dendritic ulcer of the cornea, interstitial keratitis in its early stages and cataract are discussed. The authors believe that in cases of cataract the slit lamp may give information of considerable value in the prognosis.

THOMAS D. ALLEN, M.D.

## EAR

Goldstein M. A. The Classification of Deafness from the Standpoint of Its Pathology, Functional Tests and Pedagogy. *L. J. S. C. P.* 1923 1: 657.

Deafness may be clinically divided into seven types, namely the lymphatic, exanthematous, central, otosclerotic, congenital, hereditary, and mechanical.

The lymphatic type is characterized by a blocking in the tubotympanic tract, a change in tissue metabolism, and an impairment in the conducting apparatus. Prompt intervention directed toward Waldeyer's lymphatic ring will relieve the obstruction and prevent complications.

The exanthematous type is characterized etiologically by its onset during the local invasion of one of the exanthemata, pathologically by more or less destruction in the ear, and functionally by impairment of both ends of the cochlear scale and frequently an intermittent and irregular attack on the rest of the cochlear cell, with the formation of tone lards.

The central type is characterized by its total and sudden development during an attack of meningitis, poliomyelitis, or exanthema, with intense febrile reaction in which the nerve trunks have been toxically invaded and destroyed.

The otosclerotic type is characterized by its progressive development usually in adult life, a spongy or sclerotic change in the labyrinthine capsule, little or no change in the membrana tympani, diminished perception of low and high tones, pro-



longation of bone conduction beyond the normal and in incipient cases paracusis

In the congenital type there is a biological absence of tissue rather than a pathologic destruction or degeneration

In the hereditary type there is hereditary transmission of a degenerative element as in rickets and syphilis which may respond to specific treatment

The mechanical type includes all those conditions in which the mechanical influences of obstruction have not developed permanent secondary pathology and in which appropriate treatment will greatly improve the hearing

Another classification to which attention is directed is that of nerve deafness in which five types are distinguished

Deafness due to pathologic changes in the end organs or the acoustic labyrinth (labyrinthine type)

Deafness due to pathologic changes in the ramus cochlearis and the distribution to the cortical centers (central type)

Deafness due to congenital absence or arrest in development of a part or all of the filaments or branches of the auditory nerve in the acoustic labyrinth (labyrinthine type)

Deafness due to congenital absence or arrest of development of the ramus cochlearis or its distribution to the cortical hearing center (central type)

Deafness due to a combination of the four groups mentioned (labyrinthine and central type)

In the differentiation of deafness a functional test is absolutely essential. This must include at least the use of four forks C<sub>5</sub> C<sub>4</sub> base C and center C or their equivalent in other apparatus

MANFRED R. WALTZ M.D.

Jenkins G. J. Otitis Deformans and Otitis Media  
J. L. Y. G. & Co. 1933, p. 344

The pathologic change in otitis deformans and otitis media are described. The important point of similarity in the microscopic appearance of the temporal bone in these diseases is osteopetrosis. In otosclerosis the Rinne test is of first importance. A negative Rinne test (below 200) is one of the earliest definite signs. This is the case also in middle ear deafness but in otosclerosis the Rinne test becomes negative with a much slighter degree of deafness than in any form of obstruction deafness.

Bone conduction is usually diminished in otosclerosis. The low tone limit is always altered and the high tone limit only slightly affected.

In otosclerosis the distinction between the point at which the patient hears the voice and that at which he can distinguish the words spoken is much greater than in middle ear or neural deafness. Persons with typical otosclerosis hear better with electrical aid.

The author believes that the symptoms and signs of typical otosclerosis are due to the site of activity of a disease which can produce other forms of deaf-

ness if it occurs in other parts of the labyrinth therefore he includes these various types of deafness in his otosclerosis group.

The cases of otosclerosis studied from the onset of the disease began as cases of pure internal ear deafness.

In otitis deformans in which the skull bones are affected to any marked degree deafness is present. In the cases studied there was no history of family deafness. In its early stages the disease probably involves the labyrinth at some distance from the foramen ovale.

The deafness found in all cases of otitis deformans affecting the head to a marked degree has some of the characteristics of typical otosclerotic deafness.

Against the possibility that the two conditions might be identical is the absence of a hereditary tendency in otitis deformans. Otosclerosis usually begins in early life, otitis deformans in late life. No family history of otosclerosis is found in otitis deformans.

W. B. STARK M.D.

Hempstead B. E. Mastoiditis without Involvement of the Middle Ear  
J. L. M. A. 1923  
129, 266

Three cases of definite mastoiditis without apparent involvement of the middle ear and during the same period 500 cases of involvement of the middle ear were observed. The term primary mastoiditis is misleading because it excludes the possibility of extension from a middle ear process that has cleared up.

In cases of mastoiditis the infection generally comes from the nasopharynx by way of the eustachian tube, the middle ear and the aditus ad antrum. If the aditus ad antrum is small it is so sealed off no drainage being left. The middle ear involvement may be so slight that it does not cause pain, discomfort, fullness, tinnitus or impairment of hearing.

Mastoiditis without apparent involvement of the middle ear must not be confused with latent suppurative otitis media which is associated with deafness and at times with pain but in which there is no spontaneous discharge of pus. The drum is lusterless, full and sometimes bulging and pus appears on incision.

Three cases are reported. The first was preceded by a furunculosis. The source of infection may have been the furunculosis or an otitis media. In the second and third cases there was a history of pain in the ear which disappeared without treatment in a very short time. The swelling of the mastoid was the outstanding finding. In all of the cases the middle ear structures and the lumen as well as the lining of the pharyngeal examination were negative. Marked fullness of the pericardial all external to the isthmus was noted. In all such cases the possibility of an undetected otitis media with its symptoms must be considered.

WILLIAM J. GENTFIELD M.D.

**NOSE**

Frank J. Recent Naval Fractures in Oil  
Rb 14 11321 1923 x 768

Of the many appliances used in the past in the treatment of the fractured nose few are employed today chiefly because most of them were built to meet the requirements of individual or hypothetical cases or for application to artificial lesions produced on the cadaver.

Injuries of the nose are divided into two primary classes: injuries without loss of tissue and injuries with laceration of bone, cartilage and soft parts. The supporting structures of the nose are subject to lacerations and incomplete or complete fracture. Practically all fractures of the nose are compound.

Statistics on fracture from European medical centers show nasal fractures to have a frequency of from 1 to 1.6 per cent.

It is generally conceded that in the non-structural firm union does not take place until late in the second week or even the third week. In the author's opinion the sheet copper splint is the best retention apparatus. This is applied after reduction of the fracture with the Carter-Adams forceps.

In conclusion, Frank emphasizes the importance of (1) aseptic technique in compound fractures, (2) the suture of lacerated skin to minimize scar formation, and (3) the use of tetanus antitoxin when indicated by the nature of the injury.

WILLIAM D. STAR, M.D.

Blaine I. S. The Routine X-Ray Examination of  
the Nasal Sinuses by Four Projections /  
b11103333

In X-ray studies of the sinuses for diagnostic purposes it is a difficult task to make exposures at four different angles. The 23 degree posterior-anterior position of the straight lateral projection of the maxillary projection posterior-anterior and the phenoid superior-inferior.

Th frequently u l m those of making only on or perh ps t o exposures (the po tero anter or and the lateral) is not quite for a careful study of the four sinu es.

A single posture of the nasal sinuses is more generally on high to his opinion to the presence of an infection in the ear and favors error in interpretation.

The spectroscopic technique consisting of a frontal and lateral projection gives satisfactory evidence of the frontal sinus but does not well exhibit the condition of the maxillary sinus. In the present study, the use of the panoramic radiograph was found to be a more complete examination of the maxillary sinus. WILLIAM H. STRECK, M.D.

WILLIAM H. STARK, M.D.

Unger M. Studies in the Use of Suction in Disease of the Accessory Nasal Sinuses. L. C. 1933.

Studies were made of the variation in the alveolar pressure in the nose during ordinary respiration, forced inspiration and also expiration, and of the

influence of the  $\epsilon$  variation on the air pressure in the accessory sinuses

It was found that suction was created when the subject sniffed strongly and that auto suction produced by inhaling as strongly as possible through the nostril with the mouth closed is an effective means of applying suction to the sinuses.

The suction pump should be fitted with a vacuum gauge more sensitive than the now used and with a by-pass valve so that the vacuum can be regulated. The vacuum necessary to draw pus from the sinus must be ascertained first by using a gauge with auto suction or the pump and the by-pass valve then set for that vacuum. The vacuum should be applied intermittently at intervals of a few seconds. The patient should be taught to use auto suction just as he is taught to use auto polterization.

WILLIAM B. STARK, M.D.

## MOUTH

Dunet G. and Michon L. Absces of the Tongue  
(I b e l l l ngu) R d h l r 023  
xlii 4 )

All of the tongue is the terminal stage of a lip-parenchymatous growth. The rare occurrence of the cleft in the lip-pharynx to the almost exclusively muscular structure of the tongue. Males are more frequently affected than females and children are more than in children. Frimmati-membrane is more general infection and the various lymphatic predisposition to the condition. The various bacterial infection.

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The onset of the symptom is variable but is usually accompanied by dysphagia, headache, a rise in the temperature, pain in the tongue, erythrit, and general malaise. The tongue becomes red and moist, enlarged and completely occludes the pharynx and is not removable. The flow of saliva from the mouth and the hiccups may be a premonitory. The ulcers are not inflamed but of maxillary anaplasia. It is a frequent accompaniment of the disease. It is a frequent accompaniment of the disease. It is a frequent accompaniment of the disease.

At the tongue may be easily confused with cystic lesions secondary tuberculosis infections and lung carcinoma. The only curative treatment is in resection and drainage.

The author adds two cases to sixteen reported in the literature.

LOYAL F. DAVIS, M.D.

## THROAT

Faunce C. B.: *Variety of the Vocal Cord in Common in Unrecognized Pathological Condition with a Histological Study in Sixteen Cases*. *L. Surg.* 1935 1: 60

Of 17 laryngeal tumors removed by operation, sixteen proved to be varieties. The preoperative histories in these cases were indefinite and offered no practical assistance in the diagnosis. In the cases in which a Wassermann test was made it was negative. The youngest patient was 16 and the oldest 47 years of age. The rest were between 22 and 44 years. There were five men and two were women. There had been no evidence of voice strain or loss of voice.

The histological study of hyaline fibrin is a most characteristic feature of this. The author has demonstrated the possibility of a false negative result of the Wassermann test of a true fibroma.

The article includes six photographs of sections showing the most typical of the various tags of the hyaline fibrin or various phases.

The etiology of variety of the cord is obscure but it is thought that infection and circulatory factors. The clinical picture may or may not be typical. It is suggestive. The condition is not uncommon but often is unrecognized. Small vessels may become completely obliterated. Irregularities may remain, leading to a false result. In some cases, the tumor may change into a fibroma or sarcoma. Recurrence after excision is rare. *WILLIAM B. STARK, M.D.*

## NECK

La Celi R., Venot A. and Bonnin H.: *Lateral Aberrant Thyroids and Thyroid Tumors* (Les tumeurs latérales de la thyroïde). *Rev. Ch. Fr.* 1935 1: 303

The authors reviewed twenty-five cases of lateral aberrant thyroid glands collected from the literature and reported one case of their own. They found a lateral aberrant thyroid as a mass of tissue with the structure of the normal or pathological thyroid gland which situated within an area bounded by the median line of the mid process of the hyoid bone and the aortic arch and the clavicle.

Such aberrant growths are four times more common in females than in males. They are usually single but not infrequently multiple. In size they vary from that of a hazelnut to that of the fetal head. They are commonly situated just posterior to the sternocleidomastoid muscle beneath the maxilla or clavicle. While they are usually they are usually not adherent to the surrounding structures. In some cases the histological picture may be that of a transition from a benign to a malignant thyroid.

Aberrant growths may develop from a small piece of thyroid tissue which becomes isolated from its normal position at the time of fixation of the neck or may arise from the third branchial arch which normally gives rise to the parathyroid and thymus

glands. The transmigration should be regarded as a rule; this is not a rule.

J. J. V. L. D. V. M. D.

Gaeremak H.: *A Clinical Study of Cystic Degeneration of the Thyroid Gland*. *Acta Chir. Scand.* 1935 133: 143

This is a report of the results in 536 cases of benign goiter. Ninety-three per cent of the subjects were females.

The incidence of goiter is greatest in the second decade of life but in almost half the cases the condition begins in the first decade. The right half of the thyroid gland is more frequently affected than the left; the left lobe more frequently enlarges than the right. Difficulty in swallowing is common disturbances in the cervical sympathetic are due as much to the size as to the firmness and distention of the goiter. On careful examination Horner's syndrome is frequently discernible but the weakness of the disturbances in the sympathetic very rarely retrogress after operation. The recurrent nerve is injured by the pressure of the goiter.

Most important is the relation of the goiter to the trachea. In 6 per cent of the cases reviewed there were attacks of suffocation which endangered life. If reoperation is necessary it is important to determine the position of the trachea and the respiratory means of the trachea. Direct tracheostomy is to be avoided as the irritation it causes may lead to infection of the lungs. One of the most desirable complications is softening of the trachea. In two cases tracheotomy was necessary after the operation. In the others fixation of the trachea by suturing the trachea to the inner surface of the sternocleidomastoid muscle was sufficient. The author opposes all methods designed to support the trachea during the operation and their use the surgeon loses the opportunity to judge of the elasticity of the tube. Immediate tracheotomy is definitely indicated after strumectomy when complete fixation of the trachea or respiratory is obstructed. Difficulty in breathing was present in 80 per cent of the cases reviewed. In 8 per cent the trachea assumed the shape of a saucer. In 14 per cent the goiter had caused a distinct pulmonary emphysema.

When the heart is affected the exact responsibility of toxic and mechanical influence is difficult to determine. Secondary changes in the heart may develop also in cases of tracheal stenosis not due to goiter.

In the treatment of goiter surgery holds first place. To date there is no known effective conservative treatment for the chronic nodular colloid goiter. According to Bretnier all goiters so far treated break down the functioning portion of the thyroid gland but with a sufficient portion on the degenerated nodules. The line of demarcation is to be recommended only in cases of simple hyperplasia. There is a great difference between treatment with iodine in which considerable quantities are en-

ployed and iodine prophylaxis as at present practiced. Czermak warns against roentgen treatment as it is followed by adhesions which render operation difficult later on.

Patients with congestive and vascular goiters should be kept in bed for a long period before operation. Affected hearts should be prepared by digitalis. In the author's cases the operation is performed under local anesthesia. In exophthalmic goiter the skin is not disinfected with iodine. Anesthesia is induced by infiltration of the skin.

In the operation the goiter is exposed in the usual manner by a collar incision through the skin and the platysma. Both thyroid arteries are ligated and divided on the side most involved or on both sides. As a rule detachment and resection of the isthmus are not done. The portions of the gland to be resected are stitched around with catgut mattress sutures. Great care is taken not to touch the recurrent nerve. A glass drain is inserted and removed at the end of twenty-four hours. The hyoid muscle is spared in only eight cases.

As a rule the operation is bilateral. Hemistrumectomy is not considered a good operation. Quervain's method of ligating the arteries is not employed as it is inconvenient. Operative widening of the entrance to the thorax has never been found necessary, even in cases of large intrathoracic nodules.

The most important operative complication is air embolism. Recklessness favors this complication. As a preventive measure the author recommends placing the patient in the recumbent position during the operation. If air embolism occurs immediate compression and copious irrigation of the field of operation with salt solution should be carried out, the pelvis elevated and oxygen administered under pressure.

Another complication of operation is hemorrhage. In six of the author's cases the ligation on a large artery became loosened during the operation and in 0.33 per cent a late hemorrhage occurred. One patient died from late hemorrhage. In most cases the cause of death is pressure of the hematoma upon the trachea. For this reason drainage of great importance.

Damage to the recurrent nerve is generally ascribable to an error in technique but up to the present time no reliable method of assuring the safety of the nerve has been devised. Postoperative hoarseness is reported by about 13 per cent of the author's patients but such lesion is of no value unless careful and repeated laryngeal examinations are made both before and after operation.

Tetany developed in eleven cases (7 per cent). In almost every instance the operation had been technically difficult. In none of these cases were all four arteries ligated. Usually the symptoms appear in the first twenty-four hours. In the treatment in addition to the administration of thyroid and parathyroid tablets and calcium lactate, the parenteral feeding of accessory thyroid glands is to be considered.

Goiter fever belongs to the most common post-operative phenomena. It is attributed to absorption from the complicated wound and an infection which is scarcely discernible clinically. Drainage is therefore established as a routine measure, primary closure of the wound being done only in exceptional cases. Partial drainage is better than none. As a rule the drain should remain in place only twenty-four hours.

In 93 per cent of the cases reviewed healing was uncomplicated. The most frequent complication was fistula formation. In two cases general sepsis developed.

The total number of deaths in the 1473 cases was thirty. Three patients died of carcinoma of the larynx, carcinoma of the esophagus and aneurism of the aorta respectively. These cases show that operation should be preceded by a thorough laryngological examination.

Influenza is a serious complication. According to von Haberer operation should not be performed within four months after recovery from influenza.

The permanency of the results of operation depends very largely on the surgical procedure. Eighty-three per cent of the patients who were subsequently examined or questioned were satisfied with the results. Much may be expected from iodine prophylaxis.

According to Hellwig and Klose the cases reviewed may be divided into two main groups from a pathologico-anatomical viewpoint: diffuse colloid goiter, 20 per cent, and adenomatous colloid goiter, 80 per cent. As in other pronouncedly goitrous localities exophthalmic goiter was relatively rare (2.6 per cent of the cases). Von Haberer takes the stand that in exophthalmic goiter the thymus also is involved and must therefore be included in the operation.

Thirty-four of the patients whose cases are reviewed were afflicted with strumitis. In thirty it progressed to the point of suppuration, breaking down. The mortality was 8.8 per cent. Struma maligna was diagnosed in thirty-three cases and only eight were operable. The life of one patient was prolonged eleven years by morcellation of a nodule pressing upon the trachea and subsequent roentgen treatment.

In conclusion Czermak states that the Funderlen-Holtz radical operation cannot be set up as the typical operation as it has not met expectations. It does not always prevent a relapse and is associated with greater danger of post-operative tetany than other procedures.

SCHUBERT (7)

Adams E. W. and Croxley H. N. A Limited Outbreak of Acute Goiter in a Children's Home  
Lancet 1933, cccv, 51

The author reports the outbreak of acute goiter in eight boys between the ages of 3 and 15 years who were living in one cottage. Two adults living with these boys showed no thyroid swelling.

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of the nuclear material were not observed and there was no constant change in the blood vessels. About the third week organization and healing began by proliferation of the fibroblasts at the periphery. The parathyroid did not show any change. Boiling water had produced no microscopic lesion at the end of one month. When quinine and urea hydrochloride were employed the changes were only microscopic.

Glands treated with radium were in all instances free from adhesions.

The strength of the radium applicator, the duration of the exposure, the distance between the radium and the tissue, the type of tissue cell treated, the structure of the tissue and the physiological characteristics must be considered. The striking feature was the apparently very marked resistance of normal

thyroid tissue to radiation. The transition from necrotic to undamaged tissue was very sharp.

The points brought out in the article are summarized as follows:

1 Primary changes induced by radium in the thyroid are hemorrhage and necrosis. Repair is complete in twelve weeks.

2 Normal thyroid is distinctly resistant to radium rays.

3 No toxic symptoms of any sort were seen.

4 No demonstrable changes were seen in the parathyroid.

5 Implantation seems superior to surface application.

6 Relatively large doses are required to obtain an extensive effect on the gland.

A. JAMES LARKIN, M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Wille sky A O The value of Cranial Decompression  
1. Operations 4 m 3 M 5 9 3 1 7 3 5

Infants at temporary decompression effect may be obtained by a puncturing the ventricle directly through the pterion or by puncturing the parietal foramen. Openings in the fronto-parietal occipital regions are undesirable as they expose the brain to undue trauma. In 20 per cent of cases of infiltrating tumor puncture of the brain is followed with hemorrhage into the tumor within a few weeks.

Suboccipital operations are the first exploration but are a disempowering. In some cases they result with rigidity of the neck for twenty-four to forty-eight hours because of operative trauma to the neck muscles a slight inflammatory reaction or extravasation of blood.

Subtemporal operations are associated with less shock than suboccipital operation. Both type of intervention may cause an increase in the intracranial pressure and a temporary increase in the first twenty-four to forty-eight hours.

Like Cunningham and Gray the author has seen no decompressive effect from lumbar puncture in cases of severe intracranial pressure after craniocerebral injury. Nevertheless he noted such an effect from the use of concentrated sodium chloride solution.

Children and young persons stand decompression operations better than older persons. Decompression is generally has little effect on tumor or grows new but in a large percentage of cases of brain tumor it relieves the headache either partially or wholly. It has no effect on the mentality. Spasticity is influenced by it favorably but it does not stop convulsions. In cases of muscular weakness and paralysis of short duration it has a beneficial action. The various forms of aphasia are affected by it relatively little. It often markedly improves vision and considerably decreases papilloedema.

Cases of craniocerebral injury include a large group in which spontaneous recovery occurs a small group in which death results whatever is done and a very small group in which the outcome is doubtful. Operation is indicated in every case showing the signs of increasing intracranial pressure. When localization is impossible a right subtemporal decompression is advisable.

The mortality from decompression operations is dependent entirely upon the gravity of the indication the length of time the neoplastic disease has been present and the patient's general condition. In 57 per cent of the cases reviewed by the author the operation gave more or less relief.

The beneficial effect of decompression upon the symptoms of brain tumor was not always proportionate to the degree of the pre-existing increase in the intracranial pressure. Many of the cases of brain tumor reviewed by the author were first seen in the later stages and showed definite general and focal symptoms. Under such disadvantages conditions the results are usually not good but in rare cases there may be unexpected improvement especially in the general symptoms. In cases of craniocerebral injury decompression is self-indicated.

WALTER C. DICKERT M.D.

Clatton and de Martel Cerebral Tumor; Sudden Onset of Symptom Following Lumbar Puncture. Relief Given by Trendelenburg Position. Cure Obtained by Deep X-Ray Therapy (Tumors of the Brain). The author reports a case of a patient who had been suffering from a tumor of the brain for several years. The patient had been treated with various methods but without success. The author reports that the patient was cured after undergoing a series of deep X-ray therapy treatments.

The author reports a case of cerebellar tumor in which a simple decompression was performed after conservative treatment. Following this a lumbar puncture was done. After symptoms immediately ensued due to herniation of the cerebellum to the foramen magnum. These subsided when the patient was placed in the Trendelenburg position. Subsequently the location of the tumor was determined by means of the X-ray and the symptoms were entirely relieved by treatment.

LOVELL F. DAVIS M.D.

Ayer J B Puncture of the Cisterna Magna  
4 m 3 M 4 19 3 1 2 2 3 5

Ayer speaks of the potential danger of cisterna magna puncture and reviews the facts which have accumulated in the past three years since he first advocated the procedure. In this review a number of physicians in different cities have cooperated the number of punctures studied being 450. No deaths have occurred as a result of the puncture and in only one case was there demonstrable hemorrhage. The unpleasant incidents have occurred in connection with serum treatment and have been confined to sudden dizziness with nystagmus sometimes nausea and occasionally facial pain. In two cases of spinal cord tumor the patient ceased breathing for a few seconds while under ether anesthesia.

Repeated punctures may be made safely. The greatest number on any one patient was twenty six. Many patients received more than ten punctures for serum treatment.

The original technique has proved satisfactory except for children. Increased intracranial pressure

with obliteration or displacement of the cistern is a contra indication

The puncture is indicated for the treatment of meningococcus meningitis block the serum treatment of cerebral syphilis the early diagnosis of compression of the spinal cord to obtain cerebrospinal fluid for examination when it is impossible or inadvisable to obtain it elsewhere and to secure a point of entrance to the subarachnoid space for irrigation

WILLIAM E SHACKLETON M D

**Wertheimer P** A Review of the Present Treatment of Trigeminal Neuralgia (L'Etat actuel du traitement de la névralgie faciale) *L'Y* n ch 1923 xx 463

It is very important to prove the presence of a major neuralgia before proceeding with treatment it is not always easy to eliminate the pseudo neuralgia The possibility of vascular and vasomotor symptoms associated with neuralgic pain should be borne in mind In every case a complete neurological and physical examination should be made to determine the etiological factor

Alcohol injections are of value in the early stages of the malady not only as a temporary therapeutic measure but also to verify the essential idiopathic character of the neuralgia and to furnish an accurate indication of the relief to be obtained by surgical methods

The operative treatment of choice is trigeminal neurectomy with preservation of the motor root Postoperative complications include facial paralysis This complication is believed to be due to traction exerted upon the great superficial petrosal nerve

LOYAL E DAVIS M D

### PERIPHERAL NERVES

**Bérard** The End Result of Suture of the Ulnar Nerve (Résultat éloigné du suture du ulnair) *L'Y* ch r 923 x 50

The author reports the findings in a case of radial nerve suture and a case of ulnar nerve suture seven and eight years respectively after the operation and almost nine years in each case after the occurrence of the original lesion

In the case of the radial nerve lesion the patient which was opposite the insertion of the iliofemoral muscle the action of the supinator longus was a strong extension of the wrist and feeble pronation and abduction of the thumb were possible but extension of the fingers was impossible Hypoesthesia was present about the first phalanx of the thumb This nerve was sutured seventeen months after the injury was received

In the case of the ulnar nerve sutured even months after the injury there was a partial lesion of the median nerve Upon examination no atrophy of the thenar or hypothenar eminences and no sensory disturbances were found but there was limitation of flexion of the thumb and in the movement of the interossei muscles

LOYAL E DAVIS M D

**Bérard** Late Suture of the Ulnar Nerve with Anastomosis of the Median by Implantation in a Case of Section of the Ulnar and Median Nerves by a War Wound Restoration of Function in the Ulnar Nerve Alone (Suture ancienne du cubital avec anastomose par implantation du médian dans un cas de section du médian et du cubital par blessure de guerre restauration du cubital seul) *L'Y* n chir 1923 xx 379

The patient had received a wound which completely sectioned the ulnar and median nerves and resulted in complete reaction of degeneration in all the muscles of the forearm and hand innervated by these nerves There was pronounced atrophy of these muscles Anesthesia was complete the skin was dry and scaly and trophic ulcers were present The ulnar nerve was sutured end to end after flexion of the forearm but the median could not be so united The two ends of the median were therefore implanted into longitudinal incisions made in the ulnar nerve

Eight years later there was complete return of function in the muscles supplied by the ulnar nerve and reduction of the original area of anesthesia No return of function could be ascertained in the muscles supplied by the median nerve

LOYAL E DAVIS M D

### SYMPATHETIC NERVES

**Siefert F** Sympathectomy (Zur Frage der Sympathektomie) *Arch f klin Ch* 922 cxxi 248

On the basis of his own experience the author confirms the usefulness of the Leriche and Bruening hypothesis with regard to the occurrence of trophic ulcers after nerve injuries especially since it is in harmony with recognized facts of anatomy and physiology He regards two cases observed by himself as of particular interest since in a certain sense they represent reversal of these conditions He doubts whether it is necessary to assume an irritation proceeding from a central neuroma

Not all the questions concerning secondary and particularly primary trophic disturbances can as yet be answered Little light has been thrown on the possible influence of constitutional factors or temporary predisposition The recommendation of a trial of peripheral sympathectomy is justifiable in all cases of trophic disturbances following a nerve injury In telephonourosis following primary nerve or vasomotor diseases on the other hand the prospect is very uncertain

In future cases more attention should be paid to functional tests for it is a question whether sufficient information is obtained from oil-of-mustard tests measurements of the blood pressure and hyperemia tests after ligation in the extremities Microscopic examination of the capillaries will also be of value and animal experiments appear to promise results

In the ligation of injured large arteries of an extremity or of aneurysms of such arteries continuity resection of the vessel should be avoided if possible In a case treated by the author the fact was demon-



strated that division of the sympathetic nerve may prepare the adventitia of the vessel for subsequent trophic disturbances. This danger would be increased by limiting the circulation by ligation in spite of the formation of good collateral paths. In view of this fact the statistics on the danger of gangrene following ligation of the larger arterial trunks should be revised.

In conclusion the author states that the results of a circular suture of a vessel successful in itself may be impaired by the interruption of the sympathetic paths in the adventitia of the vessel. The tone in the involved vascular region must not be disturbed as this may lead to trophic disturbances in the tissues such as occurred in a case reported.

HAFCKER (Z)

**Santý Wound of the Axilla with Incomplete Section of the Brachial Plexus. Amelioration of Sensory and Circulatory Disturbances in the Hand by Arterial Sympathectomy.** (Plaidé m'at destiné à l'opération de la sympathectomie de la plexus brachial.)

In the case reported an injury of the axilla had incompletely sectioned the components of the brachial plexus and completely sectioned the axillary artery. At the time of the injury nothing more than treatment of the hemorrhage and shock was possible. Later the nerves were united. Six months after this operation the patient complained of intense numbness and pain in the hand which was cyanotic and cold. The radial artery showed no pulsation. The wound was then explored and the cutaneous tissue about the nerves was removed. As the ligated ends of the axillary artery were not pulsed the ends of the vessel were denuded. Almost immediately thereafter the radial pulse returned and the hand became red and warm and the paresthesia disturbances became less marked.

LOUÏS (Z)

**Le 1<sup>er</sup> Th End Result Three Years and Th ee Month After a Perifemoral Sympathectomy for a Perforating Plantar Ulcer Following Section of the Sciatic Nerve.** (Résultat à long é--3 ans et 3 m--du esymp thectomie péfémoro pour un ulcérant plantaire après section du sciatique.)

In the case reported a gunshot wound in the posterior aspect of the thigh in which the sciatic nerve was injured was followed by complete paralysis of the leg with vasomotor disturbances and causalgia in the foot. The sciatic nerve as there fore freshly sectioned and the ends sutured. Subsequently a perforating ulcer developed on the plantar surface of the foot and a femoral sympathectomy was performed. Eight days later the ulcer was completely healed. Three years and three months after the sympathectomy the foot was warm of normal color and without any edema or cyanosis. The ulcerated area remained healed and there was no evidence of regeneration in the nerve suture.

LOYAL F D (Z)

**Kappis M. Further Experiences with Sympathectomy in Cases of Delayed Consolidation Ulcers of the Leg, Etc.** (Wit Erfhring mit d Sympathectomie bei r g t k l d t Be k h m) A l k ch g z

According to the experience of Kappis peripheral arterial sympathectomy occasionally improves the arterial nutrition of the peripheral portion of the extremity. It was used by him in arterio sclerotic gangrenous phlegmonous ulcer and delayed consolidation. In the majority of cases the results were surprising. Evidently the vasoconstrictor tone which is produced by the dominance of the vasoconstrictors in part is of the vasodilator coursing in mixed nerves is reduced by the sympathectomy. However up to the present time the nature of the effect of the operation has not been definitely determined.

RIEER (Z)

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

**Leriche Lymphorrhœa Consecutive to Clearing Out the Axilla in the Treatment of Cancer of the Breast** (De la lymphorrhée cutanée dans le traitement de la tumeur cancéreuse de la glande mammaire) *Lyon chir.* 1933

In the radical operation for cancer of the breast with the division of the pectoral minor muscle and dissection of the axillary cellular tissue the axillary vein is largely uncovered and all or part of the lymph channel are interrupted. If the amputation wound is drained the lymph flow is more apt to be overlooked.

In thirty-two cases in which the author looked for the wound without drainage there were two with an unusually abundant lymphorrhœa. The patients were about 60 years old. A tumor of the outer half of the breast was removed by Halsted's method with care to obtain perfect hemostasis and with closure of the skin without traction. The postoperative course was apyretic. On the eighth day when the stitches were removed a voluminous fluctuating collection was found extending over part of the wound and when the cutaneous edge was lifted with the finger a flow of limbo-colored slightly pink fluid escaped. At first the fluid needed slight redressing within six hours but it gradually diminished and on the fifteenth day it had disappeared. Recently the author has had a third similar case.

Because of the character of the fluid and its intermittent rhythmic discharge the absence of fever and the occasionally associated extremities studied the author considers the condition undoubtedly a discharge of lymph. In favor of this view is the fact that the discharge ceases about the sixteenth day at which time Halsted has shown that the lymphatics become re-established and may be injected.

The author states that lymphorrhea is not sufficient emphasis is placed on the work on cancer of the breast. A thin operation is essentially benign the loss of a large quantity of lymphatic fluid is agreeable daily irrigation may be prevented. The author advises waiting for a few days and then punting the collection outside of the chest.

W. T. C. BURKE, M.D.

## TRACHEA LUNGS AND PLEURA

**Crayden J. The Possibility of the Surgical Treatment of Pulmonary Tuberculosis** *Br. J. Surg.* 1933

The author quotes Sigmund's well known statistics which show that when a complete collapse could

be obtained by artificial pneumothorax more than 50 per cent of the patients were able to go back to work and that in cases with complete pneumothorax but extensive localized adhesions the corresponding percentage was 33 while in cases with incomplete pneumothorax and larger adhesions it was 11.

With regard to the type of case in which pneumothorax is indicated Crayden writes: When a case of advanced tuberculosis does not show any improvement or hope of lasting cure by ordinary sanatorium treatment and when other special remedies are out of the question or have been tried in vain then only do we venture to consider whether a case is fit for collapse treatment.

In cases without noteworthy adhesions and with out-tuberculous disease in the other lung complete pneumothorax generally proves successful. As a rule it is maintained for from three to five years. In cases with complete or almost complete pneumothorax but with extensive localized adhesions the author resorts to the Jacobaeus thoracic scopy with cauterization. This method is not applicable to all cases and requires are not to cauterize surface adhesions where large blood vessels or lung abscesses might be opened. If hemorrhage occurs the bleeding points may be cauterized or the intrathoracic pressure raised by the injection of salt solution. When artificial pneumothorax is impossible any satisfactory thoracic plastic is indicated. Crayden usually follows Saucbruch's technique. He advocates separating the difficult parts of the operation. The two-stage procedure is the safer method but in the cases of short-lived persons the one-stage method may sometimes be used. RALPH B. BETTMAN, M.D.

**Keller W. I. Bronchial Fistula** *J. I. M. I.* 1933

Of thirty-five cases of chronic pyemia with bronchial fistula 84 per cent were due to intrapulmonary suppuration, 2 per cent to extrapulmonary suppuration and 3 per cent to external violence. Thirty-seven per cent of cases of multiple fistulae. In about a third tuberculous is a factor.

Closure effected in 36 per cent by simple mobilization and sterilization of the cavity in 50 per cent by mobilization and partial suture of the fistula plus muscle implantation in 26 per cent by invagination of the fistula and in 10 per cent by mobilization plus muscle implantation but without suture of the fistula. The mortality was 26 per cent. Small multiple fistulae were treated by cauterization. Skin flaps prove unsatisfactory.

One of the two methods giving the best results consisted in mobilization of the fistula closure by

a pursestring suture and reinforcement with a muscle graft. This was satisfactory in cases in which the cavity had been successfully sterilized; the grafts remained and were transformed into connective tissue. In infected cavities the grafts were rapidly destroyed.

The other method which proved most successful consisted in the use of a pedunculated muscle flap covered with skin except at the site of its attachment over the cavity. This was anchored over the unsutured fistula by means of a few silkworm gut sutures and left in place until it had become firmly attached. It was then cut off and matted to the next fistula to be occluded. The wound was left wide open and dressed with a 20 per cent solution of argyrol. The author has found argyrol a valuable substitute when Dakin's solution is not tolerated.

RALPH B. BETTMAN, M.D.

Playfair, K. and Wakeley, C. P. G. Primary Carcinoma of the Lung. A Discussion of Its Incidence and Diagnosis. *Brit. J. Surg.* 9:3, 1923.

The authors found four cases of primary carcinoma of the lung in 3,183 postmortem examinations (0.1 per cent). From these four cases which they describe in detail and from those reported in the literature they draw the following conclusions:

1. Primary carcinoma of the lung is probably more common than is generally believed.

2. The fact that a chronic inflammatory affliction precedes the carcinoma suggests that such a condition may be a factor in the etiology. Chronic bronchitis originating from the respiratory lesions of influenza may be one of the most important precursors of pulmonary carcinoma.

3. The pathology is still obscure. Some of the carcinomata are readily classified histologically while others remain undisturbed as to their origin.

The authors emphasize the importance of bearing in mind the possibility of a primary pulmonary neoplasm in all cases presenting chronic lung symptoms such as shortness of breath, cough, hæmoptysis and thoracic pain.

Röntgenography a useful adjunct at times often unreliable. Degenerated carcinoma cells are rarely found in the sputum.

Surgery performed under intratracheal anesthesia and possibly the simultaneous administration of X-ray treatment offer the only chance of eradicating the disease.

RALPH B. BETTMAN, M.D.

Graham, F. A. Pneumotomy with the Cautery. *J. A. M. A.* 1923, 19:3, 1923.

Chronic suppuration of the lung is one of the most difficult conditions to treat. The lung is apt to be honeycombed with small abscesses some of which do not connect with the main drainage tract. The bronchi are thickened and dilated and the lumina are filled with easily bleeding granulation tissue. Compression of the lung by pneumothorax, multiple rib resection or other methods is usually unsatisfactory.

Drainage is impossible and lobectomy is a most formidable operation with a very high mortality.

Graham describes an operation which he describes. He has performed it in three cases with no mortality and with a remarkable absence of reaction during or just after the operation. All three patients were greatly benefited. The operation is in reality a pneumectomy performed with the actual cautery. It is performed in several stages. Anesthesia is required for the first stage only; the rest being performed if desired in the patient's room.

At the first stage the field is exposed by turning up a flap of skin and muscle and removing several ribs. The affected portion of the lung is then incised covered by pleura to which it is usually densely adherent. The first stage may then be terminated if necessary. At a later stage no anesthetic is required or if the patient is apprehensive a little nitrous oxide and oxygen may be given. With a large soldering iron heated to a red heat an excision is then made in the lung tissue. If an old drainage track exists it is well to begin the cauterization by plunging the hot iron into the sinus and to work out from that. New abscesses are sometimes found this way lying close but not communicating with the main drainage tract. The operation is not complete until all the diseased tissue has been removed by the cautery but it may be performed in as many stages as desired.

The author checks up on the results with the X-ray thus satisfying himself that all diseased lung has been removed. He believes that a bilateral supuration may be treated in a similar manner. It might be supposed that there would be great danger from hæmorrhage when the eschar is separated but in Graham's three cases there was no hæmorrhage. Moreover on account of the low blood pressure in the pulmonary circulation (about one-sixth of the systemic blood pressure) a hæmorrhage would be very easily controlled by packing.

RALPH B. BETTMAN, M.D.

Hinz, R. Total Removal of the Left Lung for Bronchial Carcinoma. (T. J. E. Turpin and Linken Lu. *Gegenwartige Chirurgie* 1923, 19:3, 1923.)

The removal of an entire lung with the pleura intact is an operation with a high comparative mortality. The chief danger is the excision of an entire lung as in the excision of single lobes lies in injury to the bronchus. Emphysema of the mediastinum and of the other lung must be avoided. Therefore dissecting out the hilus of the greater cleft must be taken not to injure the pleura. Following this dissection the pleura must be very carefully sutured around the stump with the stumps of the ligaments laterally the pleural cavity. This can be done best if it is possible to leave with the hilus a small stump of the lung which after the vessels and the bronchus have been cared for can be sutured to cover the hilus. Whether the pleural cavity should be closed

primarily or drained has not yet been decided. In the excision of single lobes drainage and tamponade are the measures surest to prevent infection pneumonia, empysema and emphysema. In the removal of an entire lung the pleural cavity should be closed and primary healing obtained because of the difficulty to be expected in curing a later empysema.

Hinz reports the case of a woman 56 years of age who following an attack of inflammation of the costal pleura became progressively weaker lost weight and complained of pain in the left side of the chest associated with a slight cough.

Over the lung on the left side posteriorly and inferiorly there was slight dullness and in certain areas slight bronchial breathing and catarrhal sounds were noted. The findings in other parts of the body showed nothing abnormal. Further clinical observation confirmed the suspicion of a malignant tumor. A diffuse spindle shaped swelling appeared on the left thoracic wall in the axillary line in the region of the fifth to the eighth rib. The roentgen picture revealed a spindle shaped tumor which had partially destroyed the fifth to eighth ribs.

The operation was performed under positive pressure and anesthesia induced with chloroform and ether. First a large pediculated skin flap was formed extending anteriorly as far as the breast posteriorly as far as the border of the scapula and downward to the ninth rib. Its base was upward almost on a level with the axilla. The entire thoracic wall was then divided 1 cm from the skin incision and the base of the flap and the entire thoracic window with the tumor was removed. On dissection of the thoracic wall no adhesions or exudate were found between it and the lung. The lung which lay exposed in the window in the thorax was well inflated and breathed regularly. The tumor which was the size of a goose egg firm and nodular lay in the middle of the lower lobe and extended

nearly to the hilum. Since excision of the lower lobe alone was impossible the entire lung was removed. Hemorrhage was not severe. The bronchus was doubly ligated with silk and the mucous membrane lying distal to the ligation was destroyed with the thermocautery. The previously loosened pleura was then drawn carefully over the stumps of the vessels and the bronchus and closed with a number of catgut sutures. After further resection of the ends of some of the ribs and very careful hemostasis the skin flap was turned down and sutured firmly without drainage of the pleural cavity. Infusions of salt solution and camphor were then given.

The immediate reaction to the operation was good but on the third day the patient died with symptoms of increasing cardiac weakness and dyspnoea.

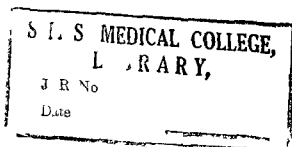
R1 SCHLAE (Z)

Spito F The Significance and Mechanism of  
Production of the Pulmonary Findings Follow-  
ing the Intraperitoneal and Intrapleural In-  
jection on Cellular and Inert Elements (Sul-  
phuric acid, amorphous iron oxide, spec-  
trum polyaniline, consecutively administered  
protein and pleural fluid element cell la-  
boratory) A Ch de obs g acc 93

In a series of experiments on rats in which the author injected into the peritoneal and pleural cavities cellular elements and inert substances such as carmine, talc and charcoal powder it was found that the granules which were sufficiently minute were taken up by the phagocytes. The others were absorbed by the lymphatic channels and carried into the blood stream by which they were borne to the lungs. The reason because of their size they caused rupture of the alveolar walls with oedema and haemorrhage. Following the intrapleural injection on the absorption was slower.

JAMES V. EGGERT, M.D.

JAMES V. PICCI, M.D.



# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Bloodg od J C. Operations for Inguin l Hernia  
Under l cal Anæsthe la 1m J S f 19 3  
85

In the author s c ses of inguinal hernia local  
æsthesia i induced with a weak solution of pro-  
aine (0.25 p r cent) Before the operation the  
patient is kept on a light di t for forty eight hou s  
No cathartic is given On the morning of the pera-  
tion th bo els are moved by enema and a light  
breakfast i given The skin is prepared in the  
usual way ith iodine and alcohol Experience has  
sho n that the majority of patients do better ith  
out the hypod rmic injection of morphine

The line of the skin i ion is infiltrated subpe-  
dermally until it stands out like a large hive The  
di i ion of the skin and fat is painless As the  
aponeurosis is sensitive the fat is divided without  
touching it and only a small area of this fascia is  
exposed at first This area is then infiltrated the  
solution being injected into and beneath the apo-  
neurosis Then gradually more of the aponeurosis  
i exposed for infiltrat on until the entire area ove  
the inguinal canal has been so infiltrated that it  
ells up like an area of œdema The aponeurosis s  
then insensitive

The skin and fat are dissected upward and do n  
ward until Poupart ligam nt one half of the sheath  
of the rectus and the aponeurosis above Poupart's  
ligament are well exposed With the index finger  
in th tern l ring the aponeurosis is divided over  
the inguinal canal until the internal oblique muscle  
i self exposed The aponeurosis then retracted  
and th anæsthetic infiltrated on th under surf ce  
of Poupart ligam nt nd of the aponeurosis into the  
muscle fibers of the tern l obliqu and beneath  
the sh ath of the r ctus do n to the p b c bone  
When th aponeuroi i divided it is fou d that  
the pr vious subaponeurosis infiltration has m de  
œl matous all the tissue in an l about the inguinal  
canal If the nerves are seen they al o are injected  
but th s is not essential

The first step n th s lation of the sac is the  
separation of the int rnal oblique from the reg on  
f the neck of the sac and the d visi n of the cover-  
gs of th sac This step exposes the peritoneal  
pouch The latter can be infiltrated on all s des  
except the posterior s de The internal oblique is  
retracted upward and outw ard and the peritoneum is  
exposed above the neck of the sac infiltrated and  
opened abo e the inte nal p nning of the sac If  
the sac contains omentum or i test e the patient  
is placed in the Tr ndelenburg posit on The p r  
itoneum is then infiltrated g n from the interi  
and the rin of the s c divid d

When the contents of the sac have been cared  
for the peritoneum is infiltrated above or bel  
the neck sufficient being left to allo a good suture  
of the opening In dividing the posterior portion of  
the sac the sac and the veins must be is lated by  
blunt di section

The opening in the per toneum is closed with fine  
silk or chromic gut If closure of the wound be-  
comes painful all of the structures are infiltrated  
again

In the ord nary hernia with a good conjoined  
tendon the cord is not transplanted An imbricated  
suture of the sheath of the rectus and inter al  
oblique to Poupart's ligament is done first ith  
fine silk or catgut The lo er t i o sutures alwa s  
include the conjoined tendon The edge of Poupart's  
ligament is sutured over this line of suture to the  
sheath of the rectus the s malum rvis fascia and  
the internal oblique muscle The aponeurosis over  
laps thes two lines of suture and i fixed to Pou-  
part's ligament ith a th d row

CARL D NIED LD MD

D scamps P The Treatment of P ritoneal T  
berculo i by Laparotomy and Heliotherapy (L  
t ait ment d l i berculos p rito é l pa b  
Lapa t mie t l diation s l ) B II i m  
Soc de ch d P 19 3 xli 62

Primary peritoneal lesions are rare Usually there  
is a visceral focus Small lesions of the ovary  
appendix leucæcum coli flexures etc are suffi-  
cient to provoke an exudative peritonitis with  
ascites or subperitoneal lymphangitic and plastic  
peritonitis Chronicity does not always signify tu-  
berculosis and an acute condition does not exclude  
it In the infiltrative sclerolymphatic types of  
peritoneal involvement syphilis is an important  
factor

All forms of peritonitis—acute subacute and  
chronic tuberculous and non tuberculous—are ben-  
efited by heliotherapy If the peritoneal reaction is  
superimposed on a visceral focus this treatment  
should be given as a supplement to surgery either  
before or after operation Under its influence the  
author has seen scleroadheses and cicatricial centers  
due to operations for drainage of the appendix  
genital organs intestinal fistulas etc disappear  
from several weeks to a few days

In case of apparently primary serious periton-  
itis in which there is no clearly determined visceral  
lesion and the clinical findings are pain and a mod-  
erate palpable resistance of the abdominal wall  
the author advises heliotherapy first d i syph-  
ilitic cases heliotherapy supplemented by specific  
therapy As a rule healing ensues without opera-  
tion

When heliotherapy does not cause amelioration and the diagnosis is in doubt an exploratory laparotomy should be done. If a visceral lesion is found it should be removed. Postoperative heliotherapy in these cases especially when laparotomy revealed only peritoneal serosa without adhesions has given markedly beneficial results.

In the author's opinion every hospital should have a solarium. In regions where the sunlight is brief and inconstant diffuse artificial light may be used.

Heliotherapy is begun with a brief regular exposure to mild rays. The duration and intensity of the exposure are then gradually increased until massive doses are tolerated. The patient is prepared for final treatment with direct and massive doses by indirect preoperative radiation. The sudden application of intense massive doses may cause sympathetic bulbar shock indicated by changes in the respiration, cardiac rhythm, arterial pressure, thermic regulation, vasomotor phenomena and glandular secretions. The rays should be filtered by screens and selectors so that only the short wave lengths of the cold part of the spectrum from the blue to the ultraviolet the so-called chemical rays are effective. The rays of the warm part of the spectrum are eliminated by screens of colored glass or uranium glass etc.

The value of rays of different wave lengths has not been established. Because of filtration of the thermic rays there is too little utilization of the alpha and beta rays. In order to obtain the maximum action of the chemical rays it is important to avoid all interposition that diminishes their strength. Glass dust, vapor, fumes, fog, etc. rapidly absorb the rays of short wave length. For this reason heliotherapy is most effective at high altitudes.

In conclusion the author states that in heliotherapy as in all radiation treatment the patient should be kept under close observation with regard to his reaction.

WALTER C. BURKET, M.D.

**Bonnet Biliary Peritonitis** (A postoperative peritonitis). *Liv. h.* 1931, 527.

The author reports three cases of peritonitis of biliary origin.

**CASE 1.** A woman aged 40 years was subjected to an emergency operation for peritonitis at night without complete record. The peritoneal cavity was found filled with bile. The gall bladder was sutured against the abdominal wall. Death occurred the same night.

**CASE 2.** A woman aged 65 years with an old irreducible inguinal hernia was seized with an attack of repeated vomiting for two days and stoppage of the bowel for feces and gas. The abdomen was uniformly distended and tender especially under the liver in the right upper quadrant. On vaginal examination the uterus was found replaced by a tumefaction in the anterior cul-de-sac. There was no icterus. At laparotomy a large quantity of purulent fluid escaped. The gall bladder was large, black, hard and completely adherent

to the surrounding structures. The cul-de-sac was drained and the gall bladder region excluded by a compress. The patient's condition did not permit further operation. After the operation pneumonia developed. About five months later a cholecystectomy was done and a large calculus which filled the gall bladder was removed. The operation was complicated by the adhesions due to the previous biliary perforation. A drain was placed to the ligated cystic duct. Postoperative pulmonary complications again developed but the patient made a complete recovery.

**CASE 3.** Three days before her admission to the hospital the patient, a woman 70 years of age, experienced a sudden attack of abdominal pain, vomiting which became bilious and stoppage of feces and gas. When she was examined by the author the abdomen was tympanitic, immovable and painful throughout but especially in the right upper quadrant. The pain radiated to the back and the left shoulder. Immediate operation under ether anesthesia revealed a moderate quantity of free peritoneal fluid, an abdominal cavity filled with distended intestines and a large quantity of brown liquid and pus around the gall bladder. The under surface of the gall bladder was black and gangrenous. After the affected area had been wrilled off the gall bladder was opened, pus and calculi were evacuated and the wall was sutured to the edges of the parietal peritoneum. Enterostomy was done for the paralytic ileus. The abdomen was closed with local drainage below the gall bladder which was excluded. The pus showed bacteria but the cultures remained sterile. Three weeks after the operation when the patient was apparently recovering, she developed respiratory complications. Death occurred suddenly three days later. Autopsy revealed pulmonary congestion, no bronchopneumonia, pus mixed with calculi in a recess of the gall bladder and marked narrowing of the common and hepatic ducts. In the author's opinion the narrowing of the biliary passages was probably secondary to inflammation in the cystic duct and an early cholecystectomy would have removed a source of septic emboli.

WALTER C. BURKET, M.D.

**N. Ujoks H. Experimental Studies on the Effects of Intraperitoneal Injections of Ether** (Einpinnung der Unterleuchenhöhle durch die Wirkung intraperitonealer Ätherinjektionen). *Monatsschrift für Geburtshilfe und Gynäkologie* 1925, 265.

Following the experiments of Hoehe and Hermann on the intraperitoneal injection of oil and those of Pinardi on the action of various drugs on the peritoneum of dogs, the author studied the effects of intraperitoneal injections of ether in rabbits. In a preliminary experiment it was found that the optimal dose of ether for medium-sized animals was 3 or 4 c.c. The seven experiments of the first series showed that a few hours after the injection a more or less abundant, usually somewhat hemorrhagic exudate appeared in the abdominal cavity.



recognized. Death has been ascribed to various causes. It is believed that serious renal damage occurs in cases of high intestinal obstruction especially that associated with gastric tetany, but the influence of the renal damage on the associated conditions has not been given due consideration.

The toxæmia and the clinical syndrome resulting from high intestinal obstruction have been carefully studied. From this study the following facts are evident:

1. Complete continued obstruction of the duodenum and upper jejunum causes fatal toxæmia.

2. The obstructed duodenal contents when injected into animal cause symptoms of intoxication similar to those occurring in animals with obstruction.

3. Decreased plasma chlorides, increased carbon dioxide combining power of the plasma, and definite nitrogen retention occur.

Opinion varies with regard to the nature of the toxic substances. Whipple and Dragstedt have ascribed the toxæmia to a proteose and the suggestion of Gerard that histamin is responsible for the toxæmia is worthy of note.

In this article the results in eleven cases of duodenal toxæmia with clinical pathological and biochemical studies are reported. Two groups of cases are considered: the pre-operative in which obstruction followed an organic lesion involving the duodenum (five cases) and the postoperative in which organic or functional stasis followed operation (six cases).

The clinical picture of duodenal toxæmia is characterized by the vomiting of large amounts of thin serous bile stained fluid usually without nausea or epigastric pain but with a feeling of distention and distress which is relieved by the belching and vomiting. The local manifestations are dehydration, a florid complexion, high hemoglobin, low blood pressure, asthenic manifestations of tetany, paralytic twitching and pain. In the chronic cases pain may be severe in the extremities before the appearance of marked gastric symptoms. Convulsions and spasms sometimes presenting terminal changes occur in the severe cases. Symptoms of uræmia such as headache, mental aberration, etc. are common.

Examination of the blood revealed as interesting features of the condition a low level of chlorides, a high carbon dioxide carrying power of the plasma, and a high level of blood urea and creatinin. The urine contained albumin and cast and renal functional tests revealed high values for urea, creatinin and decreased excretion of phenolsulphonephthalein.

In six cases in which pathological studies were made nephros, characterized by a uterine type of changes in the tubular epithelium and glomerular changes, was found. No marked changes were seen in the glomerular epithelium. Marked distention of the stomach and duodenum was noted in all cases that came to autopsy. Definite changes in the mucosa of the duodenum were seen in only one case.

The prognosis in the pre-operative cases depends largely on the lesion. The alkalosis is of less consequence and more easily controlled. There may be chloride depletion and renal insufficiency with recovery. Pre-operative medical management or palliative drainage may be necessary. Blood urea above 100 mgm. for each 100 ccm. and a phenolsulphonephthalein excretion of 10 per cent or less mean a poor surgical risk.

The postoperative condition is apt to prove more serious than the pre-operative and the course more fulminating. In both groups the degree of renal injury is probably the determining factor.

Except in cases in which the operative risk is too great the treatment is primarily surgical. Drainage to relieve the obstruction is usually employed. Etherization may be undesirable because resistance is markedly lowered by it in cases of histamin poisoning. Gerard advises the use of nitrous oxide and oxygen. In the medical treatment drainage by means of a stomach tube and frequent gastric lavage are necessary. Normal salt or Ringer's solution are given by rectum, subcutaneously or intravenously to replace the lost fluid. A low protein and high carbohydrate diet is given because of the accumulation of nitrogen in the blood. Bacterius acidophilus or buttermilk is given at times to produce an aciduric intestinal flora. Hydrochloric acid is given to combat the alkalosis. From 1 to 2 ccm. may be administered by stomach tube or from 2 to 4 ccm. in physiological salt solution by rectum. Ten per cent calcium chloride solution in doses of from 1 to 2 gm. is administered intravenously for gastric tetany. It is important to avoid sodium bicarbonate in gastric tetany and duodenal toxæmia because of its toxic properties and the consequent alkalosis.

LOUIS S. FALST, M.D.

#### Gibson, C. L. Acute Perforations of the Stomach and Duodenum. *B. to M. C. S. J.* 1931, 1, 425.

The diagnosis of acute perforation of the stomach and duodenum is sometimes rendered difficult by:

1. The absence of a history of gastric disturbance.
2. The absence of vomiting after the pain.
3. The presence of blood in the vomitus. This is rare.
4. Pain in the lower abdomen, particularly in the right iliac fossa. This is due to the extravasation and accumulation of fluid.
5. Absence of obliteration of liver dullness in early cases.

As a rule the diagnosis is easy if the possibility of the condition is borne in mind. The usual clinical picture is that of an acute onset with collapse and abdominal findings in a patient with a history of gastric disturbance. Secondary or referred pain in the left supraclavicular fossa, a very characteristic feature, comes on shortly after the original pain does not last long and is usually forgotten by the patient unless he is questioned regarding it. The presence of air in the abdominal cavity may be



demonstrated by the fluoroscope. The escape of air from the abdomen when the wound is flooded with water and the presence of ingested methylene blue in the abdominal contents constitute positive proof of a perforation of the gastro intestinal tract.

In the author's series of fifty-nine cases operated upon there were only four deaths. After the first twenty-four hours the mortality quickly rises to 66 per cent.

HARRY W. FINE, M.D.

**Ginnola. The Role of the Vagus Nerves in the Surgical Treatment of Gastric Ulcer.** (Du rôle des nerfs vagues dans le traitement chirurgical de l'ulcère gastrique.) *Bull. Soc. Ch. 931, 1909.*

The stomach is supplied on its anterior and posterior wall along the area of the lesser curvature by both vagi. The area along the greater curvature is supplied by fibers from the coeliac plexus and the pyloric portion the sphincter and the first portion of the duodenum by three trunks of fibers from the hepatic plexus. Sectioning of any nerve trunk reduces the activity of the part of the stomach it supplies. Ginnola therefore recommends nerve sectioning in the treatment of the hyperactive stomach with hypersecretion and to alleviate the pain of the gastric rises of tabes. For the treatment of gastric ulcer he recommends resection of the lesion supplemented by nerve section. JAMES A. RECTOR, M.D.

**Fraenkel A. Progress in the Diagnosis of Cancer and Ulceration of the Stomach by Means of Cinematograph Examination by the Roentgen Ray.** (Progress der Diagnostik des Magenulcers und des Magenkrebses durch die Röntgenstrahlen.) *Monatsschr. Chir. 36, 1909.*

The types of gastric motility which may be differentiated are of relatively little importance; the chief object should be to ascertain whether or not movements occur. When the character of the tumor is distinctly evident in the roentgenogram cinematography is superfluous.

In his roentgen ray examinations the author has frequently found the peristalsis so indistinct that diagnosis was impossible and cinematographic investigation was the only method of solving the problem. One of his pictures of gastric cancer showed the peristalsis arrested in the lesser curvature just before the pylorus. On subsequent resection on the absence of signs in the roentgenogram was explained by the fact that the tumor was still circumscribed and had not penetrated to the external surface of the stomach.

As simple ulcer does not change the peristalsis cinematography is of little value in such cases.

**Cheever D. The Operative Curability of Carcinoma of the Stomach.** *Surg. 93, 1909.*

With respect to the question of operability Cheever analyzed all cases of carcinoma of the

stomach treated at the Peter Bent Brigham Hospital in the period from 1913 to 1922.

The most formidable obstacle to success seems to lie in the fact that patients seek surgical aid too late because of the insidious course of the disease. In the fairly advanced cases the duration of the symptoms was six months or less in 50 per cent and one year or less in 80 per cent at the time the patient entered the hospital. In 30 per cent of the cases the initial symptoms or signs were such common complaints as weakness and debility, general abdominal pain, constipation, pallor, backache, etc. In 25.5 per cent epigastric pain in 50.2 per cent epigastric distress after meals in 22.2 per cent belching in 8.5 per cent nausea and vomiting in 0.8 per cent a mass in the epigastrium and in 0.4 per cent bloody vomitus. Sixty-six and one-half per cent of the patients were males. The condition is not rare before the age of 40.

A gastric ulcer history was given in only 7.6 per cent. In 77.9 per cent there had been no sign of gastric ulcer and in 25.5 per cent there was a questionable gastric ulcer history.

In 52.5 per cent of the 236 cases a radical exploratory or palliative operation was possible. In 10.1 per cent which were explored a palliative radical operation was found impossible. A palliative operation was done in 22.4 per cent and a radical operation in 9.7 per cent. Live per cent of the patients refused operation. The operative mortality was 20.8 per cent in the cases subjected to exploration and 3 per cent in those subjected to a palliative or radical operation.

In the inoperable cases the life expectancy was less than one month in 44.8 per cent and less than four months in 70.4 per cent. In inoperable cases it was two months or less in 9.6 per cent from two to six months in 27.7 per cent from six to twelve months in 32.2 per cent from twelve to eighteen months in 7.7 per cent and eighteen months or more in 6 per cent. In cases receiving palliative treatment it was less than four months in 33.3 per cent and more than four months in 73.3 per cent.

In cases receiving radical treatment it was less than one year in 0 per cent from one year to a year and a half in 30 per cent from two and a half to four years in 10 per cent and seven years in 5 per cent. A five-year cure was obtained in 13 per cent of the operable cases or 12 per cent of all cases.

Consequently it is concluded that carcinoma of the stomach is curable by radical surgical operation at the expense of a high but justifiable mortality.

M. L. NICHOLS, M.D.

**Jiménez García L. Intestinal Occlusion Due to Biliary Calculus.** (Algu de a bilis en el intestino.) *Rev. Med. 6, 1909.*

The author reports a case of intestinal occlusion from biliary calculus in a woman aged 55 years.

At the time of the patient's admission to the hospital there was slight muscular rigidity with distention round the umbilicus. The pressure and frequency of the pulse were good and the general condition excellent. Vomiting had not occurred within twenty-four hours and as small quantities of feces and gas were expelled occlusion was not evident. At the end of twenty-four hours recurrence of vomiting in lighted surgical intervention.

An infra-umbilical laparotomy performed under spinal anesthesia revealed an enormously dilated and congested bowel and a large egg-shaped biliary calculus at the distal end of the small intestine. The calculus was removed and the wound closed in the usual way but the patient died the following day.

The author discusses the frequency of intestinal occlusion by biliary calculi and describes the formation and migration of the stones. He emphasizes the difficulty of diagnosis and enumerates the most common symptoms. Early operation is indicated. The author prefers enterostomy to enterotomy or enterectomy; it can be done under local anesthesia. The operation should be preceded by large laparotomy to facilitate rapid examination of the biliary ducts and the site of the occlusion. The technique most frequently used for the removal of the calculus is transverse enterotomy at the site of obstruction but if the intestinal lesions are so serious that there is danger of perforation after suture enterectomy is indicated.

**Rolfe G. The Pathogenesis of Chronic Duodenal Ulcer from the Point of View of the Mechanical Anatomical Disposition of the Duodenum and Bulb.** (Die Pathogenese des chronischen Duodenalulcers unter dem Gesichtswinkel der mechanischen Disposition des Bulbus duodeni.) *Bilzkl. Chir.* 9, 34.

The author begins his discussion with the statement that peptic ulcer is the basic factor in the development of all chronic ulcers; can be effective only in areas suitable for it. The fact that both chronic duodenal ulcer and chronic gastric ulcer appear at definite spots suggests that at these points the conditions are particularly favorable.

The chronic peptic ulcer of the duodenum makes its appearance in the uppermost portion of the duodenum usually in the posterior and upper wall. This portion of the duodenum possesses peculiar anatomical relations not shared by the other portions.

In studies made by the author on cadavers fixed in the upright posture the accepted anatomical relations of the duodenum to the portal column, liver, gall bladder and pancreas were confirmed. The horizontal part of the duodenum is compressed and flattened between the liver and the gall bladder on the right and the pancreas on the left so that the posterior surface of the superior portion of the duodenum is firmly adherent to organs which have little flexibility. Besides this, the clamp there is a small diaphragm, the gall bladder in front and the

hepatoduodenal ligament behind which cause a sort of stenosis.

In addition to these anatomical peculiarities, secondary factors such as tight clothing, continuous work in a bent over position, spinal deformities, an increase in the intra-abdominal pressure and local spasm contractions are of particular importance in explaining the development of ulcers in the duodenum. Thus the frequency of duodenal ulcer in the male may be explained by the sharper transition of the abdominal convexity of the spinal column into the abdominal concavity. In addition to the continuous pressure, the angular transition of the upper portion into the descending portion plays a rôle as it retards the passage of the duodenal contents. In this is this factor becomes of special importance.

The finer structure of the upper portion of the duodenum is also different. The mucous membrane shows a paucity of Kerkring's folds, thus being associated with firm fixation and increased tension just as at the lesser curvature of the stomach. It is possible also that the abundance of lymph follicles with their thin epithelial covering plays a part in the etiology of chronic ulcer. The small arterial supply, which is from one source only—the celiac artery—may be another factor.

Regarding functional factors, the author calls attention to the fact that the portion of the duodenum which is attached to unyielding organs is the portion most exposed to the impact of the food coming from the stomach. Therefore the posterior and upper wall of the bulb of the duodenum is the site of the greatest mechanical irritation. HAGEMANN (Z).

**Koennecke W. and Jungermann E. The Symptoms and Etiology of Postoperative Jejunal Ulcer.** (Beiträge zur Klinik und Ätiologie des postoperativen Jejunalulcers.) *Arch. f. kl. Chir.* 92, 36.

At the Göttingen surgical clinic seventeen peptic ulcers of the jejunum were found during the past ten years in 50 cases of ulcer and 201 gastro-enterostomies. Fourteen of these cases were operated upon. In two a second operation was necessary, thus raising the number of operations for jejunal ulcer to sixteen. Fifteen of the seventeen patients with jejunal ulcer were males. In the majority of the cases the jejunal ulcers developed very soon after the first operation. The time between the first and second operations ranged from two weeks to twelve years.

The diagnosis of peptic ulcer of the jejunum was made before the second operation in nine cases. Usually on the basis of the severe pain which in most cases was dependent on the ingestion of food. In three cases vomiting occurred; in five there was a distinct tumor. Examinations of the stools for blood were made in eight cases but the findings were positive in only two. The gastric juice was examined in eleven cases; in six the acidity was normal; in five there was hyperacidity. Thirteen, eighteen

examinations were made in eleven cases the emptying of the stomach was delayed but in only two were there unimportant signs of ulcer.

In eleven cases the ulcer had perforated into surrounding structures. In ten it was restricted to the jejunum alone in five it was gastrojejunal. In one case it developed into a stomatostoma following an antro-gastro-enterostomy. All of the ten jejunal ulcers but only one of the gastrojejunal ulcers had perforated into the surrounding structures.

The site of the primary ulcer particularly if it is the duodenum is of the utmost etiological importance because of the cicatricial or spastic stenosis of the duodenum which it may cause. The type of operation which preceded the peptic jejunal ulcer is of importance only in its relation to obstruction at the pylorus or in the duodenum and the digestive power of the pyloric portion of the stomach. The pyloric portion of the stomach is as is well known an important center for the regulation of the gastric mechanism and for the production of the juice of the fundus which contains pepsin and hydrochloric acid. The secretion of the pyloric portion is alkaline and neutral. If the content of the fundus is to acid reflex act on its entrance into the pyloric portion stops the further production of hydrochloric acid of the chyme is not acid enough. When it enters the pyloric portion the reflex function of the pyloric portion causes an increase in the production of hydrochloric acid. This normal method of regulation is thrown into disorder by a gastro-enterostomy but the disturbance is still greater when von Eiselsberg's anastomotic exclusion is performed in which case the pyloric portion contains only its own alkaline secretion. The digestive action of the juice of the fundus is then too powerful and causes peptic ulcer. However it is improbable that the loss of pyloric function is the sole condition responsible for the formation of peptic jejunal ulcer.

In eleven cases the sites of the ulcer and the gastro-enterotomy were resected once by transverse resection nine times by the Billroth II and once by the Billroth I method. In two cases of peptic jejunal ulcer following transverse gastro-enterostomy plus Brun's anastomosis the ulcer alone was excised. In three cases of following posterior gastro-enterostomy an antro-gastro-enterostomy with Brun's anastomosis was done.

Of those patients of whom the radical operation was performed one died of peritonitis and one of empty malnutrition. Of the remaining nine five had good result and two very good results (one of these had a laparotomy for ulcer and a finally cured infection with a Billroth I operation). In one case the ultimate result was good and one died of infection. The result of the two excisions were disappointing. In one case ulcer appeared in the other resection of the old food intake. In the first pyloric portion of the stomach was necessary subsequently. Of the three operative

the results of one were very good and of another very poor those of the third are unknown.

Because of the possibility of a later peptic jejunal ulcer both von Eiselsberg's pyloric exclusion and simple gastro-enterostomy are regarded with disfavor. Although the physiological relations following transverse resection are good recurrence of the ulcer follows this procedure comparatively frequently. Without doubt the best operation for ulcer is resection by the Billroth I method. Resection by the Billroth II method is associated with the least danger of peptic jejunal ulcer when the pyloric portion of the stomach is widely resected and the primary ulcer (in the duodenum) is also removed. When this is not possible Frusterman's method may be considered.

MARWEDL (Z)

**Mauclaire's Use of Serous Graft After the Removal of Membrane in Malignant Peritonitis**  
 The use of peritoneal serous grafts in malignant peritonitis has been reported by Mauclaire. In his series of cases he found that the use of serous grafts was beneficial in the treatment of malignant peritonitis. He reported that the use of serous grafts was beneficial in the treatment of malignant peritonitis. He reported that the use of serous grafts was beneficial in the treatment of malignant peritonitis.

Frequently in reoperation after appendectomy it is discovered that the persisting symptoms are due to a membranous peritonitis. Omental adhesions are also common. Bands of adhesions may be found binding the colon to the abdominal wall and the urinary bladder. The omentum is often rolled up and fastens the stomach by pulling it to the right. At one time Mauclaire merely resected the membranes but as they subsequently reformed and the pain persisted he adopted the practice of removing them and performing a colopexy. As this procedure did not prove entirely satisfactory he now supplements removal of the membranes and colopexy with the use of serous grafts. Dead serous grafts obtained from sheep and preserved in alcohol are used. The ascending and transverse colons are wrapped separately and a lateral colopexy is then done. Another graft is placed on the mesocolon to prevent its contraction. The suggestion is made that fragments of amniotic membrane obtained at caesarean section might be employed.

Usually the grafts take well. They cannot be used before the central colon is greatly decompressed. In such cases Mauclaire performs a colectomy. In his experimental work on rabbits he employed sheep's peritoneum and human amniotic membrane. Sheep grafts lead to a fatal outcome. Mauclaire has used serous grafts also in cases of intestinal perforation.

**Roller's Histology of Colitis** 1933

In considering ulcerative colitis the author explains many extraneous ulcerative conditions such as abscess rupturing into the bowel, appendicitis, abscesses, malnutrition, leucemia, and tuberculosis. Ulceration of the colon is not a primary disease but a secondary condition. It is a result of a primary disease of the colon. It is a result of a primary disease of the colon. It is a result of a primary disease of the colon.

ulcerations due to acute colitis of known toxic origin such as that following bichloride poisoning the various forms of parasitic colitis infective proctitis of local origin and ulcerations following pneumonia and accidents. With regard to the so-called institutional dysentery he states that recent work by a number of serologists has proved this to be an outbreak contracted from carriers harboring the Type X of the Oxford series of Flexner dysentery organism.

The condition discussed is the sporadic case seen in civil practice which is not from a laboratory viewpoint a bacillary dysentery. It is not a specific disease bacteriologically since many organisms are isolated. Those found most frequently are the bacillus coli pneumoniae, the bacillus proteus, and the streptococci.

Among the factors favoring the condition is a diet deficient in vitamins. McCarron proved that healthy monkeys which are carriers of entamoeba histolytica may develop amoebic dysentery when restricted to a deficient diet. Under suitable conditions organisms ordinarily of low virulence such as the colon bacillus may become pathogenic.

Among the complications of ulcerative colitis are perforation, localized abscesses, and less commonly general peritonitis. In rare cases stricture of the colon from cicatrization follows extensive ulceration. Occasional sequelae are arthritis or other so-called focal infections.

The onset of the condition may be sudden or gradual and its course acute or chronic. An organism producing an acute condition may be later supplanted by another causing a more chronic condition. The early symptoms are usually those of colonic irritation. The leucocyte count is variable. The temperature is above normal in the acute cases and often normal or subnormal in the chronic cases. The development of anemia depends upon the loss of blood and the duration of the disease. The feces contain blood, pus, mucus, and occasionally sloughs of the mucous membrane. The onset of the condition may be associated with hemorrhage, especially if ulceration is low in the colon. Usually there is a history of abdominal discomfort rather than of acute pain, gas, and indigestion, and a loss of weight and loss of appetite. The x-ray and histology in the diagnosis but the sigmoidoscopy of great value.

The patient has a tendency to recur and its mortality is significant. It must be differentiated from carcinoma, tuberculous, and follicular ulceration of the colon.

In the treatment, restriction of the diet is seldom necessary. Support is practically complete before the food reaches the ulcerated areas. An antiscorbutic is indicated. Bulgarian bacillus cultures of questionable value.

Many drugs have been advocated for this condition. Chief among them are the so-called intestinal antiseptics. Irritants such as oil olive oil and many other similar preparations are used. Large

of the colon with antiseptics has been largely supplanted by appendicostomy or cecostomy to wash out the colon. Lushorn uses for irrigation a jointed intestinal tube from 15 to 20 ft long which he introduces through the mouth and passes into the caecum under control of the x-ray.

The author prefers an open cecostomy or colostomy as this relieves the colon from the passage of faeces over the infected area.

Hurst states that the appendicostomy shortens the duration of the illness to one half the time that it would persist under medical treatment. Vaccines are of questionable value and if given in the acute stages may aggravate the condition.

HAROLD M. CAMP, M.D.

HORDER S. T. Lockhart Mummery J. P. Dick on  
W. E. C. and Others Ulcerative Colitis. P. 6  
Roy Soc Med L d 1933. Sect Pr et 96

SIR THOMAS HORDER. Ulcerative colitis is most common in women from 25 to 35 years of age with enteroptosis, circulatory disturbances and infections. The chief bacteriological cause is the streptococcus, the colon bacillus being a possible one. The condition is apt to recur often because it is systemic and associated with low resistance. The sigmoidoscopy often reveals the persistence of ulcers after the patient has apparently recovered. If the patient's condition is such that operation is required the colon may be drained by an appendicostomy or a cecostomy and this should be followed by rest in bed in the open air. The diet should be as full as it can be made without increasing the diarrhoea. Tonics are helpful. Vaccines may be used as supplementary treatment.

J. P. LOCKHART MUMMERY. In 1909 the mortality of ulcerative colitis was 50 per cent today because of improved methods of diagnosis and treatment it is 15 per cent.

The ulceration may be limited or may cover most of the colon. The ulcers usually begin in the solitary follicle.

In asylums the condition may be due chiefly to poor hygiene and some specific infecting organism. Chronic colitis may follow acute epidemic form such as amoebic bacillary and sand dysentery. It is then usually due to a secondary infection caused by the streptococcus. A case is cited in which the infection was due to milk from a cow with an udder infected with streptococci.

Because of the multiplicity of bacteria in the stools the specific organism cannot be ascertained easily. Fair results have been obtained from appendicostomy and an attempt to substitute another organism such as the bacillus bulgaricus. This substitution must be repeated and the proper food supplied. Vaccines have not been very successful.

The chief symptom is severe persistent and bloody diarrhoea associated with rapid wasting. The temperature is mild except in pneumonic cases. Death is usually due to exhaustion, wasting, hemorrhage or perforation.



requires a much greater length of bowel more extensive freeing of the colon and more time the subsequent anatomical result is not perfect and the blind pouches may cause trouble later

Axial anastomoses of the colon have given poor results because of abscess and fistula formation due to the segmental type of blood supply. The stitches sometimes constrict the vessels on the mesenteric side thus damaging the blood supply to the opposite side of the colon and causing sloughing. If the bowel is cut at an angle of 45 degrees an adequate blood supply is provided and the lumen is increased good results being thus assured. In axial anastomosis careful aseptic technique should be used. It is important to protect the wound with towels and to change the gloves and instruments after handling the interior of the colon. The author draws the part to be resected out of the wound secures the mesenteric vessels cuts the mesentery and places rubber clamps well above and below the area. The section is removed by cutting at an angle of 45 degrees. The two cut ends of the bowel are held together with forceps and stitched with catgut passed through all of the layers every fourth or fifth stitch being locked to control bleeding. A fine catgut peritoneal suture is then made around the gut and an omental graft stitched around the suture line. The cæcum is drained by the tube method.

Other methods described are those to obtain anastomosis without exposing the interior of the bowel such as clushing the bowel with forceps and suturing the outer layers the introduction of one straight suture through the crushed end and its removal after the insertion of the permanent stitches and the use of various clamps.

The end of the colon may be closed by (1) suturing over a clamp and tying the end (2) rolling the crushed end in opposite directions with two forceps and tying (3) making a Swiss roll and suturing (4) sewing over a tapered clamp and covering with a pursestring suture.

In joining the ileum to the large gut the ileo-cæcal valve should be preserved if possible.

For anastomosis of the lower end of the pelvic colon the tube method is preferred.

In total colectomy the ileocaecal valve should be preserved if it is not diseased and the great omentum removed.

The author has had better results with axial than with lateral anastomosis of the colon.

MARCUS H. H. M.D.

Forgue and Millard. The Circulation of the Sigmoid Rectal Segment. The True Importance of Sudek's Point. A Contribution to the Technique of Abdominoperineal Excision of the Rectum. (La circulation du segment sigmoïde-rectal. L'importance du point de Sudek. Contribution à la technique de l'excision abdomino-périnéale du rectum). Rev. d'Ch. P. 93, 16.

In the extensive operations performed for cancer of the rectum ligation of certain vessels has resulted

in gangrene of the portion of the intestine nearest the perineum or in cases of resection in the disunion of the sutures through ischæmic necrosis of the intestine. The gangrene is dependent upon failure of collateral circulation. The authors have therefore attempted to solve the following problems:

1. What are the different positions of the inferior mesenteric artery which supplies the sigmoid colon and the rectum?

2. At what points may ligation be done without danger of gangrene or disunion of the sutures after excision of an intestinal neoplasm?

The inferior mesenteric artery arises from the aorta from 5 to 8 cm. above its bifurcation and passes down and to the left between the fold of the iliac mesocolon to a point near the level of the left common iliac artery. There it divides into two branches the trunk of the left colic arteries and the superior hæmorrhoidal artery. In general anatomists consider the colics as collateral branches and the superior hæmorrhoidal artery as the terminal branch.

The trunk of the left colic arteries divides into two or three branches which trifurcate and form anastomoses in a series of arches which give off the terminal branches to the left half of the transverse colon the descending colon and the iliac colon. The upper branch of the left colics anastomoses with the right superior colic branch of the superior mesenteric artery and the lowest branch anastomoses with the superior hæmorrhoidal. This is the classical disposition of the vessels. In the absence of the inferior mesenteric artery the left colic arteries the sigmoid and the superior hæmorrhoidal are supplied from the superior mesenteric.

According to Cuneo and Mondor the collateral distribution of the inferior mesenteric shows two variations: one a ladder like origin of the branches and the other a fan shaped origin. In the first the left colic artery comes off alone from the inferior mesenteric about 2 cm. from its origin while the sigmoid comes off about 2 to 3 cm. below. In the second variation the left colic and the sigmoid come off at the same level and sometimes by a common trunk.

The number of sigmoids is variable and according to Mondor depends upon the length of the loop and the length of the pelvic mesocolon.

Like the colic arteries on the right side those on the left meet in the mesocolon bifurcate and anastomose in a manner to form long arches with their convexity outward. From the convex side of these arches appear numerous branches which run the intestine well either directly or after forming small arches.

The upper left colic anastomoses with the superior right colic and the left inferior colic with the superior hæmorrhoidal.

All the anastomoses along the edge of the mesentery of the large intestine constitute the marginal artery of the colon. This artery lies at a variable distance from the colon being very close where the colon is fixed and at about 2 to 3 cm. away in the mobile

portion of the sigmoid. According to Cuneo and Mondor, the greater the mobility of the colon the more definite the plexus formation of the anastomoses and the greater the distance of the arches from the border of the intestine.

The superior hemorrhoidal artery is the largest and most voluminous of the arteries of the rectum. It may be considered as the extension of the inferior mesenteric artery. It passes in the folds of the lumbo-sacral root of the pelvic mesocolon until at the upper extremity of the rectum it joins the rectal wall on the posterior side between the spongy rectal sheath and the muscular tunic. Sometimes it bifurcates within the mesocolon before it reaches the rectum but more often it divides at the level of the upper extremity of the ampulla. The results of bifurcation are: (1) The right superior hemorrhoidal artery, which is the larger, extends obliquely on the posterior and right side to reach the anterior wall. (2) The left superior hemorrhoidal artery passes down the anterior rectal wall. These two arteries have irregular collateral branches. Unlike the colic terminals, the rectal terminals have no arch formation.

The intestinal segment between the last sigmoid artery and the bifurcation of the superior hemorrhoidal artery is poorly supplied. The portion which is called the point of Sudeck is supplied by the anastomosis between the last sigmoid and the superior hemorrhoidal artery. Ligatures of the superior hemorrhoidal artery below this point will lead to gangrene of the rectum.

On the basis of the experiments Dittus has done the following conclusions:

1. Ligatures of the inferior mesenteric artery does not modify the circulation of the rectum provided the ligature is placed between its origin and the origin of its last important collateral branch which arises about 10 cm below the promontory.

2. Ligatures of the terminal part of the inferior mesenteric artery below this last collateral is followed by almost complete loss of circulation to the rectum and the recto-sigmoid junction.

3. Ligatures of the right and left superior hemorrhoidal vessels do not compromise the circulation in the corresponding part of the rectum.

The anastomosis of the last sigmoid with the terminal of the inferior mesenteric artery of the hemorrhoidals is the last remnant of the vessels and the chief source of the collateral circulation between the last part of the sigmoid and the vessels of the rectum. If ligatures are done above this point the blood may still be supplied to the rectum by the route of the last anastomosis but if it is done below the critical point the tumor is deprived of this anastomosis and there is risk of necrosis of the terminal part.

The situation of the critical point undetermined. Some what variable but Mondor has found it usually to be about 2 cm below the promontory.

Gangrene of the terminal end of the rectum is a possibility in every operation on the upper end

whether it is done by the sacral route (which has been practically abandoned by French surgeons) the abdominal perineal route (which is usually the route of choice) or the perineal route (which still has numerous indications). This gangrene is the result of ischaemia due to lack of circulation. In testicular necrosis leads to disunion of sutures followed by infection of the perirectal cellular tissues or the peritoneum.

The demonstration of the circulatory weakness of the point of Sudeck has been made by Sudeck and by Dietrichs through injections. Rueblich made twenty-four experimental injections showing this condition. It has been demonstrated also in several autopsies.

In perineal amputation of the rectum a preliminary peritomy should be performed to permit the correct placement of a ligature on the superior hemorrhoidal artery. While in some cases the rectum may be torn enough to bleed from fine anastomoses even when the superior hemorrhoidal is ligated below the critical point, this is so rare that it should not be relied upon.

In doing a combined abdominoperineal operation the surgeon has the choice of sacrificing the distal end and making an artificial anal anus or of mobilizing the promontory without injuring the circulation and bringing it through the skin at the perineum or attaching it to the conserved anal canal. The authors consider the ileocolostomy the procedure of choice but believe that the anal segment when healthy should be saved. R. SCO JERSON, MD.

#### BILIA, A. B. High Strictures of the Rectum. J. Am. Med. Ass. 1931, 135.

The difficulty in determining the etiology of benign strictures of the rectum is due to the irregularity of methods. Histories point to vesiculitis and post-Wassermann reactions are not conclusive proof that the strictures are syphilitic and microscopic examination of little value because the early characteristics of the lesions are distorted by secondary changes. Nonsyphilitic lesions may be present in syphilitics.

The author reports a study of 258 cases of rectal strictures. Sixty-five hundredths per cent of the patients were over 20 years of age. One hundred and thirty-eight were males. The duration of symptoms was usually over two years. The most prominent symptoms were constipation alternating with distention and diarrhea. Complications: massive obstruction, encephalopathy, and passing of blood and pus. Two hundred and sixteen patients had rectal strictures only, thirty-five patients had distended stool. Fifty-five patients had a positive history of syphilis, a questionable history a positive Wassermann reaction or central nervous system syphilis. Thirty-two of these had had an operation on the rectum in operation for pelvic inflammation, vesiculitis or entamebiasis. One stricture followed cystoscopic examination with perforation of the urethra and other was associated

with a sinus from a tuberculous hip to the rectum. Three of the patients had radium burns and two had been scalded during proctocolysis.

Treatment for syphilis is usually employed but is without benefit. Most forms of treatment are disappointing. Resection when possible offers the best results. Dilatation is helpful but is painful, long drawn out and not curative. Colostomy should be done more often. **LOUIS A. BURKE M.D.**

**Alglave and Saleil: Cancer of the Rectum Treated by Radium Therapy After Exclusion of the Diseased Intestinal Segment. Condition of Healing One Year Later.** (Cancer d. ect m tr té p r radi m thé ap e ap ès ex cl s n d se me t m t est l m alade l ét t d gué n ap ès un an) *B H t me S c d i d P r 9 3 i 10*

In the case of a man 50 years of age who had noted the first signs of rectal disease two months previously by an annular growth with infiltration of the various layers of the rectum was found. Histologic examination of a specimen showed carcinoma.

The first operation consisted in exclusion of the rectosigmoid segment in two stages. An omega shaped skin incision with the open end of the omega toward the median line was made in the lower right quadrant of the abdomen. The anterior musculo aponeurotic layers of the abdominal wall were separated and the peritoneum was opened. The iliac sigmoid was then drawn out, its mesentery perforated and the omega skin flap passed through and then resutured in the original location. Thus the sigmoid was made to extend over the skin flap like a bridge. Five or six days later when it had become well adherent to the surrounding abdominal wall it was divided with the thermocautery so that each stump extended 1 to 2 cm. outside the abdominal wall. In this manner two sigmoid openings were formed. The upper opening served as a fecal fistula and the lower one permitted daily lavage of the rectal neoplastic segment.

After several lavages the diseased segment became suitable for radium treatment. Saleil placed at the center of the neoplasm 100 to 150 mgm. of radium bromide filtered through 1 mm. of silver. The aluminum container was fixed in place for seven days by a suture at the anal margin.

During the subsequent weeks the patient suffered considerably from rectal inflammation which required injections of morphine sometimes six or twenty-four hours. Fragments of gangrenous tissue of foul odor and fetid sanguinous fluid were eliminated and lavaged out. This elimination gradually ceased until only mucus from the secreting surface of the rectum remained. Local examination showed that the location of the neoplasm had been replaced by a cavity which was circumscribed by a soft pink healthy appearing membrane.

The artificial anus had sufficient continence to permit the patient to come and go and sit at his task without inconvenience. Occasionally a little

lavage of the upper segment was necessary to obtain a stool.

The patient's general condition is very good and if healing is maintained for several months Alglave expects to close the abdominal openings by lifting the skin flap and reestablishing the continuity of the intestinal canal by the aid of Dupuytren enterotome.

The authors have used the method of radiotherapy described in eight cases.

**WALTER C. BURKET M.D.**

**Drueck C. J.: Tuberculosis of the Anus and Rectum.** *Am J Clin Med 1923 xvi 655*

Tuberculosis of the skin about the anus appears as military ulcerative or lupoid lesions.

Military tuberculosis is about the anus is very rare and occurs as a complication of tuberculosis of other parts of the body.

Tuberculous ulcers at the anus sometimes begin with injury. They may appear first on the external skin or within the anal canal. They are not confined to a sulcus but widen out in all directions. Their borders are clean cut and undermined and surrounded by a raised zone of induration. There is not much pain with the passage of feces or during the manipulation of examination. The latter feature distinguishes this ulceration from fissure, chancre, mucous patch and rodent ulcer. Unlike syphilitic ulcerations healing does not occur at one spot while the ulceration progresses at another.

Lupus begins at the mucocutaneous juncture at the anus or vulva as a small soft reddish brown nodule in the corium which later breaks down into small ulcers irregular in outline and with an indurated base. One of the chief conditions from which this lesion must be differentiated is cancer. Cancer rarely occurs in early life and when it does runs a rapid course whereas lupus frequently appears in childhood and persists in adult life. The base of the cancer ulcer is pearly white indurated uneven and glazed and its edges are everted. Lupus ulcers are usually multiple and have a soft insensitive base and edges covered with granulations. The secretions of cancer are scanty and fetid while the discharge of lupus is profuse and odorless. Syphilis is distinguished by the history or by the presence of skin lesions, mucous patches and a positive Wassermann reaction.

If the initial tuberculous lesion in the anus is of moderate extent or inactive the treatment may consist of thorough cauterization with the Iaquelin cautery followed by gradual exposure to the sunlight.

In anal lupus satisfactory results have been obtained from phototherapy and the use of the roentgen rays. Zinc cataphoresis has also proved successful.

Tuberculosis within the rectum occurs most commonly in the form of ulcerative and hypertrophic changes. The military form is rare. Usually the condition is secondary to tuberculosis of the



gital organs. The mucosa is pale and anemic except that about the nozzle there is a ring of congestion. Ultimately the nodules break down into cuplike ulcers.

Ulcerative tuberculosis of the bowel is usually secondary to pulmonary tuberculosis. It begins in the solitary tubercles and later spreads but spreads into large irregular ulcers which follow the course of the blood vessels. Beneath the ulceration is a deposit of fibrous tissue. The local symptoms of tuberculous ulceration of the sigmoid or rectum are lumbar or sacral pain and rectal tenesmus accompanied by diarrhoeal evacuations of pus blood and mucus which increases until thirty or forty evacuations occur daily.

Tuberculous ulceration of the bowel should be looked for in every case of pulmonary tuberculosis with diarrhea. The clinical picture is characterized by (1) the presence of tuberculous elsewhere, (2) ulcers which follow the blood vessels and in the rectum spread out irregularly, (3) a diarrhoeal discharge of mucus blood and pus and (4) general emaciation.

Amoebic ulcers may be mistaken for tuberculous lesions but the patient with amoebic dysentery passes through many periods of symptomatic cure followed by sharp relapses which is quite in contrast to the course in tuberculosis. In amoebic ulceration there is little variation in the temperature and an increased pulse rate only with exhaustion while in tuberculous ulceration fever and acceleration of the pulse rate are always present.

Cancer in the ulcerative stage fills the lumen of the gut and causes symptoms of obstruction.

Syphilitic ulcer has a punched-out appearance with a raised edge while the tuberculous ulcer is irregular and has an uneven base.

Hypertrophic tuberculosis of the bowel which is sometimes confused with syphilis and cancer is characterized by the formation of a dense hypertrophy. A proliferating stenosis with thickening of the wall is found in the caecum and appendix as well as in the sigmoid and rectum. The patient has the same diarrhoeal tenesmus sacral pain and loss of weight as in the ulcerative type of tuberculosis. The lesion can be differentiated from cancer or diverticulitis only with the microscope. If stricture occurs resection is indicated.

Tuberculous perianal abscess and fistula may or may not be associated with tuberculosis elsewhere. About 5 per cent of persons with pulmonary tuberculosis have rectal fistula.

The signs of a tuberculous rectal fistula are the discharge of a small amount of thin milky white matter from a anal fissure which never heals the presence of discharge into the lumen of the perianal manipulation on the presence of multiple external openings and the finding of tuberculous tissue and reaction on histological study.

The terminal opening of a tuberculous fistula differs from that of the simple fistula in that instead of the usual small opening there may be a cavity

large enough to admit the examiner's finger. The skin about the opening is red and purple and the ulcer is irregular with undermined edges and has a pale base. Sometimes the gelatinous granulation overflows the ulcer until the external opening resembles a wart.

A further aid in determining the tuberculous character of a rectal fistula is the presence of calcified lymph glands within the pelvis. Guinea pig inoculations and microscopic examination of a section of the tissue are also indicated in doubtful cases.

In cases without an active tuberculous lesion elsewhere the treatment should consist in excision of the fistula with a cautery or knife and stimulation of healing by daily exposure to sunlight and air. In cases with an active tuberculous focus elsewhere, the use of bismuth iodoform mixtures in paste or emulsion form is indicated. The wound should first be thoroughly irrigated with sterile saline or boric acid solution and then swabbed with 75 per cent alcohol. After the injection of the bismuth iodoform mixture it should be closed with collodion or adhesive.

WILLIAM A. HENDRICKS, M.D.

## LIVER GALL-BLADDER PANCREAS AND SPLEEN

Elm J. M. and Laport G. L. Indigo Carmine as a Functional Permeability Test of the Liver. *J. R. M. J. & M. D. A. C.* 93 (1) 35.

Indigo Carmine as used by the authors as a means of determining liver permeability. The average time for 10 c.c. of a 1 per cent solution of the dye given intramuscularly to appear in the bile of control patients was forty minutes. When liver disease was present the time for the appearance of the dye was lengthened. When small amounts of the dye appeared in the bile correspondingly larger amounts appeared in the urine.

White blood counts taken every thirty minutes in cases of cancer of the liver showed a normal rise after the injection of 100 c.c. of milk—a finding quite contradictory to the observations by Widal.

WILLIAM P. V. WAGE, M.D.

Friedenwald J. and Gantt W. H. Some Observations on the Physiology of the Tracheocholelithotomy. *J. M. J. & M. D. A. C.* 93 (1) 59.

The authors state that the phenoltetrachlorophthalate test is a valuable means of determining liver function but in order to obtain reliable results it must be carried out carefully in every detail. The preparation used must be fresh the tube must be properly introduced and the drip well established.

In normal persons the length of time elapsing before dye is excreted is extremely constant from day to day and averages thirteen and seven tenths minutes. A delay of more than twenty three minutes indicates a hepatic disease or mechanical obstruction between the biliary ducts and the ampulla of Vater. The most marked delay occurs in biliary cirrhosis.

The test has proved useful in checking up the technique of non surgical biliary drainage. It has been found of value also in the diagnosis of cirrhosis and carcinoma of the liver and obstruction of the common duct due to stone or tumor. The manner in which the tetrachlorophthalain flows may aid in differentiating cases in which a delay occurs—especially the differentiation of cholelithiasis, cancer and cirrhosis of the liver, and external causes of obstruction. In cases of calculus the flow is usually intermittent and shows a variation from day to day, whereas in cirrhosis and other forms of obstruction it is constant and exhibits extremely slight variation from day to day.

SAMUEL KAHN, M.D.

**Bloom W.** The Role of the Lymphatic in the Absorption of Biligment from the Liver in Obstructive Jaundice. *Bull J h s Hopk H p B t* 93 xxx 36

The question of the origin of jaundice is apparently unsettled. In a review of the literature Bloom found that according to the belief of some writers the damming back of bile in biliary obstruction is associated with dilatation and rupture of the bile capillaries. There is a difference of opinion also as to whether absorption takes place by way of the blood or the lymph stream.

In experiments performed on dogs in an attempt to solve the first of the problems the livers were fixed with formalin and Zenker's solution, stained by Eppinger's method and carefully examined. In no case was rupture of a bile capillary found.

To determine whether absorption takes place by way of the blood or the lymph stream the kidneys of the dogs were removed prior to the experiments in order to prevent the escape of biligment by urinary excretion. Preliminary work had proved that simple nephrectomy does not cause bilirubinemia. In another series of experiments with the gall bladder and the kidneys removed it was found that Van den Bergh's indirect test for bilirubin became positive in the blood serum approximately two hours after ligation of the common duct. In a final series of experiments in which in addition to the condition of the previous experiments the entire lymph stream of the thoracic duct was collected the reaction to the indirect Van den Bergh test was positive in the lymph when the blood serum was still pigmented free and the blood serum remained pigment free up to the time the dogs were killed—from three to five and one half hours.

In a discussion of the Van den Bergh test Bloom calls attention to the fact that while the indirect reaction was positive in the experiments reported the direct reaction was always negative. In the direct tests Ehrlich's diazo reagent was added to simple blood serum and in the indirect tests it was added to alcoholized protein free serum. The direct reaction is positive only in cases of definitely obstructive jaundice while the indirect is positive in all types of jaundice regardless of its cause.

I. M. HAY, M.D.

**Sihol J.** Tumor of the Liver. Resection. Recovery. Histologic Examinations (Tumeur du f. ré. s. t. guérison e. amens histologiques) *B. H. t. 1. en So. de cl. d. P.* 93 dix 33

A woman aged 73 years suffered for seven months with epigastric tenderness, loss of appetite, nausea, and occasional vomiting. For five months there had been an enlargement of the left upper abdomen which did not increase in size. A dry pleurisy had been present for four years. There was no history of syphilis or marriage. The scars of cervical and supraclavicular adenitis of childhood were found. Complaint was made of slight general itching.

Examination revealed in the left hypochondrium a hard movable somewhat tender tumor which was the size of an orange and seemed continuous with the left lobe of the liver. The liver was enlarged two finger breadths downward. The spleen was palpable as distinctly separate from the mass. X-ray study revealed no involvement of the stomach. The Wassermann blood reaction was negative but the intradermal reaction was positive. The urine contained albumin, urobilin, and traces of bile. The apex of the right lung was somewhat impured.

At operation through an upper midline incision an orange size nodular tumor was found occupying the convex and inferior surfaces of the left lobe of the liver. The nodules were a pale yellow and of firm consistency. The hepatic extremity of the tumor was narrowed into a 1 cm. isthmus. Through this an amputation was performed. Hemorrhage was controlled by ligation of each half of the isthmus. The omentum was fixed without suture against the line of liver closure. There were no adhesions or ascites. The patient recovered.

The histologic diagnosis was disputed. The report of one pathologist was Tuberculosis with progressive and very extensive caseation at the periphery of the caseous zone, lymphoconjunctive reaction and giant cells. Another claimed that the growth showed the structure of a subacute caseous inflammation due to tuberculosis or syphilis. No tubercle bacilli could be demonstrated.

The diagnosis of sclero gummatous liver was based upon these findings: (1) a bizarre acidophilic leucocytic debris and vague fibrinoid structure and (2) the presence of numerous plasmacytes and cells in the course of sclerotic organization, pericapsulitis and the absence about the giant cells of a more or less extended circle of lymphoid cells.

The author is therefore uncertain whether the tumor was tuberculous or syphilitic.

WALTER C. BURKET, M.D.

**Alvarz W. C. Mey r K. F. Rusk G. Y. Taylor F. B. and Easton I.** Present Day Problems in Riga d to Gall Bladder Infections. *J. Am. M. t.* 923 lxxx 974

The author urges early recognition and operative treatment of cholecystitis. This condition they characterize as a disease which begins in youth.

but is first recognized and properly treated in old age. In a study of sixty cases they found that the average duration of symptoms was nineteen years.

Early diagnosis is based on a history of pain and signs of reflex peristalsis such as vomiting, sick headache, belching, bloating, lassitude, constipation, and hemorrhoids. Colic occurs in about 20 per cent of the cases. Jaundice is not a very common sign and lay color stools occur in very few cases. A history of infection in the appendix sinuses, pleura, or joints, frequent typhoid is rather rare. The most important physical sign is a tender liver edge. The Litzner-Lyon diagnostic test is not of much value. The X-ray is helpful mainly in ruling out other gastrointestinal troubles.

At operation 64 per cent of the authors' cases showed definite gross pathology. In the others the gall bladder was removed on the strength of the history. Thirty-six of the thirty-seven more questionable gall bladders subjected to section showed definite pathology. Cultures revealed infection of the bile in 63 per cent and of the bile in 29 per cent. 3 per cent were sterile.

The operative mortality was 17 per cent. Seven of the patients are perfectly well, eighteen are much better, eleven are somewhat better, and three have not been benefited by the operation.

M. L. M. O. M. D.

**Lemierre and Lévesque: Independent Biliary Retention During Congenital Agenesis from an Icterus of Spirochaetal Origin. Normal Pyloric Cholelithiasis and Simultaneous Cholangitis (Rejection of bile duct epithelium). Nephrocalculosis. Pyloric stenosis. Hemiplegia. Multiple (Biliary) Membranes. Spleen. Kidney. Pyloric stenosis.**

Examination of the urine is not sufficient to establish an independent icterus since in cases of high pyelonephritis the urine may contain bile salts but no bile pigment. The authors report a case of normal pyelonephritis with elimination of bile salts in the urine as shown by the Hay test. The patient was a 50-year-old man who had a spirochaetal icterus and during exacerbation excreted in the urine large amounts of urobilin without true biliary pigment. The Hay test was positive. Later when the stools were clay-colored bilirubin appeared in the urine and urobilin was present only in trace. The Hay test remained positive. Two months later the blood showed a pyelonephritic cholelithiasis of 130,000. Soon the Hay test became negative. Prunty's was present as long as the Hay test was positive.

KELLOGG, FRED, M.D.

**Dahl, I. E. and Schierbeek, N. J.: Congenital Atresia and Stenosis of the Bile Ducts (Urbiliousness, Atresia, and Stenosis of the Gallbladder). Biliary fistula. 93.**

The literature to date reports 137 cases of congenital atresia and stenosis of the bile ducts. Of these 120 (including the authors' five cases) fall into seven

categories: (1) absence or obliteration of all the extrahepatic bile ducts; (2) entire or partial absence or obliteration of the choledochus; (3) obliteration of the upper end of the cystic duct; (4) absence or obliteration of the hepatic duct; (5) multiple atresia of the extrahepatic bile passages; (6) atresia of the cystic duct with or without inclusion of the gall bladder; and (7) stenosis of the extrahepatic bile passages.

In eighteen of the cases an inflammatory process was found to be the cause of the occlusion. In the others the condition was regarded as a congenital anomaly. With regard to the cause of such anomalies the authors favor the theory of von Meyerburg which is supported by the embryological observations of Lewis. Von Meyerburg contends that in theanlage the primitive bile passages are interrupted and become linked up with the general system only secondarily.

In the authors' five cases the diagnosis was confirmed at autopsy.

The signs are icterus, acholic feces, the presence of bile pigment in the urine, emaciation, atrophy, restlessness, or stupor, and eating choleraic, occasionally a hemorrhagic diathesis, muscular spasms, and finally convulsions and coma. The temperature remains normal or is subnormal. In the majority of the cases the urine contains no urobilin or urobilinogen. Frequently furuncles, abscesses, bronchopneumonia, and uncontrollable hemorrhage are contributory causes of death.

In the differential diagnosis icterus gravis neonatorum is distinguished by the presence of pigment in the stools and urine and early collapse. The septal forms of icterus are characterized by fever and the other signs of inflammation. Subchronic hepatitis occasionally cannot be differentiated.

The only form of treatment is surgical operation. Hepatostomy and choledochostomy have often been attempted. The chances for success are very slight as the subject usually a weak icteric child in grave danger of hemorrhage. Choledochostomy and cystostomy give a favorable result in only 8 to 12 per cent of the cases. Cholangio-entostomy should be done in two stages.

DRAUDT (2)

**Haggard, W. D.: The Diagnosis and Management of Stones in the Common Duct. J. Am. M. A. 93: 1109.**

Haggard analyzes a series of 273 operations on the gall bladder and bile ducts. In 62 per cent of the cases the common duct stones. In a total of fifty cases treated surgically for stones the common bile duct the mortality was 10 per cent. The average age of the patient was 52 years.

A history of typhoid fever was given in 36 per cent of the cases while an additional 18 per cent were treated for so-called typhoid malarial. All of the men had borne children or had had a typhoid infection. The average duration of symptoms was 14.8 years.

Characteristic gall stone colic was present in 90 per cent of the cases. In 8 per cent the condition was ushered in by gastric distress. All of the patients complained of pain in the upper right quadrant of the abdomen at some time during the attacks. The pain radiated to the back in 45 per cent to the shoulder in 64 per cent and to the chest in 53 per cent. In 90.7 per cent of the cases hypodermic injection of morphine were necessary.

Chills were present in 81.1 per cent. Many of the patients had received treatment for malaria without relief.

Jaundice occurred in 90 per cent varying in degree duration and intensity. Half of these patients complained of indigestion between attacks. About two-third of all of them suffered loss of weight and strength.

At operation the common duct was usually found dilated. Occasionally the dilatation was marked and the duct solidly plugged with calculi. A contracted gall bladder with or without calculi was found in about 70 per cent of the cases. In a few instances the common duct contained white bile due to prolonged obstruction with bile stagnation and excess mucous secretion.

Intolerance of the gall bladder may start the stone in motion toward the common duct. If the stone is arrested in the duct at the ampulla or higher up so that it obstructs the bile flow characteristic fever, colic and jaundice ensue. The advent of secondary infection necessarily determines the severity of the condition.

Dilatation of the gall bladder follows pressure on the duct from without as in carcinoma of the head of the pancreas or stricture of the common duct.

The pain of common duct stone is often dull and colicky in type spasmodic and accompanied by rigors or chills and rapid elevation of the temperature which often reaches 104 or 105 degrees Fahrenheit and then suddenly drops to subnormal. The febrile reaction has been termed the rigors of cholangitis infection. The varying degree of jaundice is characteristic of chronic obstruction of the common duct. The stools are first gray and then black while the urine is bile tinged. Calculus obstruction is practically always associated with pain.

In obstruction of the duct due to cancer pain is usually absent. The jaundice is persistent and becomes increasingly severe. As a rule cancer of the gall bladder runs its course in four or eight weeks.

Cases of obstruction of the common duct are late neglected cases of gall stone disease. The mortality is about ten times greater than that due to stones in the gall bladder. Common duct obstruction parallels obstruction of the urinary bladder due to prostatic hypertrophy in that if it is permitted to develop eventually impairs the function of an important organ. It is best to do a two stage operation especially in the case of jaundiced dehydrated patients. Simple drainage of the gall bladder or duct above the obstruction is followed by secondary removal of the calculus; the procedure of choice. The marked

tendency of the jaundiced patient to bleed after operation is perhaps best controlled by preliminary transfusion of whole blood and the daily intravenous administration of 5 to 10 c.c. of 10 per cent solution of calcium chloride as recommended by Walters.

JOHN W. ALLEN, M.D.

#### McArthur, L. L. Repair of the Common Bile Duct

1. Surg. 93:1x 19

Stricture or loss of continuity of the common bile duct due to disease, accident or neoplasm is one of the most distressing complications in bile tract surgery and is occurring more frequently as a sequel to former surgical invasions of the bile tract.

A review of the literature shows that many methods have been suggested for the relief of this condition but the final results have been more or less unsatisfactory. The missing portion of the duct has been reconstructed from flaps of all three layers of the bowel and stomach from portions of the gall bladder and experimentally from fascial transplants.

The earliest recorded attempt to reconstruct the common duct over a tube was made by Jenckel in 1900. The patient was discharged as cured but a duodenal fistula developed when the tube was removed.

In 1907 the author operated upon a case of chronic common duct obstruction due to calculi and scar tissue and passed a small catheter down the duct well into the duodenum. Ultimate recovery was uneventful although the patient was re-operated upon nine months later because of a stricture about the site of the former opening.

The T-shaped tube recommended by Sullivan in 1909 has the disadvantage that eventually it must be removed and this has often resulted in tearing the tube or injuring the duct so that the original injury was reproduced.

The author's method consists in passing the catheter into the duodenum for a distance of 6 to 8 inches. By the constant duodenal and jejunal tug upon the catheter it will ultimately be drawn into the intestine and discharged per rectum. In a series of eight cases the shortest time of discharge was twenty-seven days and the longest sixty-three days. If the surgeon desires the tube to remain in place longer this can be readily assured by tying a waxed silk ligature to the catheter bringing it out through the interval between the ends of the duct being repaired and carrying it through a small rubber tube reaching from the duct to the surface of the body. When the tube is to be cast off this thread is cut at the surface. Thus the tube may be removed without a secondary interference. If it is impossible to find the distal end of the duct the catheter may be inserted through an opening in the duodenum and held there by a pursestring suture but this of course carries with it the potential danger of an ascending cholangitis. In the author's cases there was little tendency to leak bile even though a hermetic suture was not attempted.

M. Arthur H. Olt. The patient has a long history of abdominal pain, which can be relieved by the use of the "L" tube. In this case, the patient has a long history of the abdominal pain and has been treated with the "L" tube for several years. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years.

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omitus, especially being black. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years.

When the pancreas is removed, the symptoms of the disease are usually relieved. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years.

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The symptoms of pancreatitis are peculiar. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years.

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Roscoe J. Rose, M.D.

Whipple, A. O. Pancreatic Asthenia. 1913.

In a series of 210 consecutive selected cases of cases of the duodenum and pancreas operated upon by the thoraco-laparotomy, it was given to the pathologic symptoms, and results are listed in the present report. Of these 210 cases, 181 had a long history of the abdominal pain and has been treated with the "L" tube for several years. The patient has a long history of the abdominal pain and has been treated with the "L" tube for several years.

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of weight. In some of Whipple's cases there has been a tendency to hæmorrhage with and without jaundice or biliary fistula, pyæmia, pain and tenderness over the pancreas, obstipation and diarrhoea.

In seventeen of the series of eighteen cases reported of finite pathology of the pancreas as found either at operation or autopsy.

The asthenia, anorexia, low blood pressure and loss of weight are not dependent upon malignancy inasmuch as twelve of the eighteen cases showed pancreaticitis rather than carcinoma.

The involvement of the pancreas increases to a marked degree the hazard of biliary surgery.

The inflammatory lesion and calculus formation limited to the gall bladder should be treated surgically before the process of inflammation extends to the pancreas. F. M. L. C. ROBERTS, M.D.

Smith, C. E. and Rusk, G. V. Endothelioma of the Spleen. A Study of Two Cases with a Review of the Literature of Primary Malignancy of the Spleen. *J. A. S. G.* 1931, 3, 371.

In the spleen there are three types of tissue from which neoplasms may arise: (1) the capsular and trabecular framework from which fibroma and fibrosarcoma may develop; (2) the lymphoid elements from which either a simple lymphoma (lymphadenoma) or a malignant lymphoblastoma (lymphosarcoma) may develop; and (3) the vascular or sinus endothelium from which angiosarcoma and their malignant counterparts, the endotheliomas, may arise. A group of hyperplasias of the endothelial cells of the pulp and in particular to the endothelial cells lining the sinuses. Simple hyperplasia of these elements is found in many conditions. One of the most interesting is the hyperplasia designated as Gaucher's disease which borders closely on the group of true neoplasms.

The most common benign tumors of the spleen are the fibromata, lymphangiomata, cavernous angiosarcoma, several of which show transition from the benign to the malignant type, lymphadenomata due to hyperplasia of the malpighian corpuscles with or without encapsulation, several types of large cell hyperplasias, endothelial cell masses, some of which resemble or merge into neoplasms, and a large cell hyperplasia resembling Gaucher's disease caused by the ingestion of large amounts of cholesterol.

Three types of cysts occur in the spleen:

1. Hæmorrhagic cysts which arise from degenerated areas in the pulp or in angiomatous areas and later become septic. Trauma with subcapsular hæmorrhage and the formation of hematomata is probably an important factor. The cysts usually contain cholesterol.

2. Dermoid cysts.

3. Parasitic cysts due to *Cysticercus cellulosæ*, *Paratuberculosis dentilulatum* and the *Echinococcus*.

The authors review most of the 104 reported cases of malignant disease of the spleen and report two cases of primary endothelioma of the spleen arising

from the endothelial cell of the sinuses which they believe is not an unusual type of splenic tumor. The most common type of tumor is probably the lymphosarcoma. This is usually part of a generalized process appearing at the same time or later in other lymphoid tissues of the body. Neoplasms of the spleen should be amenable to surgical treatment. Therefore in cases in which they are suspected an exploratory laparotomy is justifiable.

MORRIS H. KAHY, M.D.

## MISCELLANEOUS

Copenhagen, N. H. Intra Abdominal Herniæ. *J. A. S. G.* 1931, 3, 332.

Intra abdominal herniæ are rare but are important from a surgical standpoint. They usually do not give warning of their presence until acute symptoms of intestinal obstruction have developed and a differential diagnosis is impossible. Extensive or prolonged operation is contra-indicated as the saving of time is important.

The abdominal fossæ may be divided into three groups: those formed around the duodenum, those around the cæcum and those around the sigmoid. The location of abdominal herniæ is confined to the corresponding areas: the duodenal, the cæcal, the foramen of Winslow and the sigmoidal areas.

Herniæ in the duodenal area, the most common type, may be divided into two chief varieties: the right duodenal and the left duodenal. Although nine paraduodenal fossæ are mentioned by Moynihan, only two are of surgical importance: the mesenterico-parietal, from which the right duodenal herniæ arise, and the paraduodenal, from which the left duodenal herniæ take their origin. In operating on duodenal herniæ, care must be taken not to injure the superior mesenteric artery and vein and the inferior vein. One hundred and one cases of paraduodenal herniæ are reported in the literature. Five have been observed in the Mayo Clinic.

Pericæcal herniæ are not as common as duodenal herniæ. Only one case has been observed at the Mayo Clinic: a posterior pericæcal hernia with transposition of the cæcum which was operated upon.

Intersigmoidal herniæ are the rarest of all types. Only nine cases have been reported in the literature and none has been observed at the Mayo Clinic.

Herniæ through the foramen of Winslow depend on four congenital anomalies: a common mesentery for the whole intestine, absence of the secondary fusion of the ascending colon to the posterior abdominal wall, abnormally large size of the foramen and abnormal length of the mesentery with undue mobility of the intestine.

Twenty-three cases of hernia through the foramen of Winslow have been reported. The case observed at the Mayo Clinic was that of a woman 56 years of age who came for examination because of an attack of acute right epigastric pain, nausea and vomiting. A diagnosis of acute intestinal obstruction was made and an enterostomy performed. A catheter being

placed in the first presenting loop of distended small bowel. The cæcum and ascending colon with a long free mesentery which had herniated through the foramen of Winslow into the lesser peritoneal cavity and ruptured through the anterior leaf of the omentum was hanging in front of the stomach. The loop was dark in color and distended to four or five times the normal size. A needle was inserted and ligature withdrawal on reduction of the hernia was then possible. A catheter was inserted at the point where the needle entered. Following the reduction of the hernia the color of the bowel improved and in the first twelve hours there was very free drainage from the catheter. Suddenly however the drainage ceased the abdomen became distended and the patient grew worse and died. Autopsy revealed that the cause of the sudden stoppage of the drainage and the terminal factor in the patient's death was a definite volvulus of the cæcum and distal portion of the ileum.

There are two types of diaphragmatic hernia: the congenital and the acquired. The acquired type should be looked for following any accident of a rushing nature.

Congenital hernia occur usually through the first part of the diaphragm as the splanchnic vessels rather than the right because of the openings of the aorta inferior vena cava and esophagus. On the right the liver serves as a shield.

The symptoms in acute cases of diaphragmatic hernia are distinguished by severe pain in the upper abdomen and the left side of the chest. Symptoms of intestinal obstruction are often present. The diagnosis of diaphragmatic hernia is made possible by the roentgen ray. However the differentiation of a true hernia and elevation of the diaphragm is often difficult. Balfour has given three important roentgenological indications of hernia: (1) destruction of the definite dome shape which is characteristic of the normal line of the diaphragm; (2) the appearance of the lung tissue through the gas bubble in the left chest; and (3) the demonstration of bismuth in the colon above the level of the bowel in the chest.

In operating on a diaphragmatic hernia it is difficult to keep the abdominal viscera from being sucked back into the thorax during the closure of the opening.

Of eight diaphragmatic hernia found at operation and reported by the author only seven are female. Five were congenital and three were traumatic. Three were on the left side and one was on the right side. The hernia on the right side of the congenital type.

Numerous observations of hernia through an abdominal opening have been reported. Such hernia may occur anywhere in the abdominal cavity. Like diaphragmatic hernia they are usually caused by injury and may follow accident or a congenital abnormality and are persistent severe straining in vomiting. They are rather common and are for the most part readily amenable to surgical treatment.

Hernia into the lesser peritoneal cavity through a tear in the lesser omentum, the gastrocolic omentum, the great omentum or the transverse mesocolon have been reported. The author collected thirty-four such cases from the literature and has reported one from the Mayo Clinic.

Considerable difficulty is encountered in the reduction of the strangulated hernia into the lesser peritoneal cavity. The close proximity of important structures to the foramen of Winslow makes enlargement of the orifice extremely hazardous.

Hernia often occur through a slit in the mesentery of the large and small bowel or the great omentum.

Istoperation intra abdominal hernia may be divided into two groups: (1) those occurring through an abdominal opening made during operation and (2) those into pouches or openings formed by the intestinal canal following an operation. The first type is not as important from a practical standpoint as the second. Since the adoption of the posterior method of gastro-enterostomy hernia through the mesentery of the transverse mesocolon are rare yet the danger of internal hernia following gastro-enterostomy is not entirely removed. In a unique case of hernia following a left rectocolostomy which was reported by Mayo and Magoun the entire small bowel had passed between the loop of sigmoid forming the colostomy and the left abdominal wall.

N. H. COPELAND, M.D.

#### Straus D. C. Subphrenic Abscess. *S. G. C. A.* 1923, 1, 95

In the case of a 72-year-old man a subphrenic abscess suddenly developed three months after an operation for rupture of the appendix and a swelling appeared in the right upper quadrant of the abdomen just below the costal margin. The liver dullness continued upward. The x-ray showed the right diaphragm to be high especially on outer side with a costodiaphragmatic angle of 90 degrees and very slight mobility.

Under general anesthesia an anteriorly pointing abscess in the abdominal wall which was not connected with the diaphragmatic abscess was opened and drained. The operation was then discontinued as the patient did not stand the anesthetic well.

Four days later under paravertebral anesthesia the diaphragmatic abscess was drained through a wide incision. Subperiosteal resection of the ninth and tenth ribs was done and the abscess cavity filled and irrigated with sterile normal salt solution until clear fluid returned. Two large drainage tubes were sutured in and after twenty-four hours two Dakin tubes were inserted. The operation was done February 28 and March 24 and the patient was discharged April 17.

The paravertebral anesthetic was given by the method of Pauchet Sourdast and Labat. With the patient on his side the skin was anesthetized on line parallel with and 4 cm. from the tips of the spinous processes. Deep injections were then made into the spinal nerves from the eighth dorsal to the first

lumbal. The needle was introduced without the syringe attached to avoid possible injection into the spinal canal or a blood vessel. Five to 6 c.c. of a 1 per cent novocaine brenalin solution were injected into each nerve, thus resulting in complete anesthesia within 1 in. of the anterior median line.

The patient stood the second operation well; it required one hour and fifteen minutes.

MARCELL H. HARRIS, M.D.

MORRISON, J. M. Elevation of the Diaphragm. Unilateral Phrenic Paralysis. A Radiological Study with Special Reference to the Differential Diagnosis. *Arch. Rad. & Coll. Path. Ray.* 923. 1931. 353 x 172. 11.

Elevation of the diaphragm may be permanent or temporary. Permanent elevation may be either congenital or acquired and conditions which may cause elevation of the diaphragm are subphrenic abscess, hydrothorax of the liver, lung disease and certain gastric diseases.

Leitwiler first differentiated eventration diaphragmatica from the common diaphragmatic hernia; reported two cases in both the hernia was in the left side. Leitwiler suggested that the right leaf of the diaphragm is protected by the convex curvature.

The term eventration diaphragmatica should be restricted to cases of congenital diffus relaxation of one half of the diaphragm causing it to extend upward into the thorax to form a sac. This sac contains a portion of the stomach and at times the colon and mesenteric plexus. In 1911 reported the first case of herniation in the right side.

Röntgenological examination makes possible an exact diagnosis. Fluoroscopic examination shows

the elevated diaphragm extending into the chest often as high as the third rib and forming a dome which encloses an air space. At the bottom of the air space there is often a free fluid line on which waves may be produced by palpation of the abdomen. The level of this line is always that of the cardiac orifice. The upper boundary of the dome is formed by the thinned out diaphragm. The stomach presents two sacs, the upper of which pulls into the lower.

The author gives a brief report of six cases. The patients' ages ranged from 12 to 54 years. The clinical diagnosis prior to X-ray examination was pyloric obstruction, duodenal ulcer or ulcer with perforation.

A common complication of elevation of the diaphragm is unilateral phrenic paralysis due to a definite lesion of the phrenic nerve. The author has seen nine such cases in the past five years. In two the right and in seven the left phrenic nerve was involved. In one case a metastatic cancer nodule which involved the phrenic nerve as it crossed the root of the left lung caused complete nerve degeneration. In the others there was pulmonary tuberculosis, elements of the diaphragm. In three of the cases there was a secondary carcinoma of the mediastinum. In three others there was pulmonary tuberculosis. In two this was associated with mediastinal growths and in one with aneurysm of the arch of the aorta.

The roentgen signs of paralysis of the left phrenic nerve are the same as those of eventration of the diaphragm, differing only in degree.

In conclusion the author states that eventration of the diaphragm may be due to a developmental defect in the muscular leaflets of the diaphragm or to unilateral phrenic paralysis due to injury or disease.

J. H. W. NICHOLS, M.D.



# GYNECOLOGY

## UTERUS

Le euf J and God d H The Lymph tics of  
de l'uterus (Le lymph tique de l'uterus) Rev  
d l l l l 29

The authors studied the lymphatics of the uterus in order to devise a rational technique for operation in cases of uterine malignancy. About 150 newborn and two adult females were injected with Prussian blue in a turpentine suspension.

The lymphatics of the body and cervix of the uterus and the upper third of the vagina have a common course which the authors designate as the principal channel. These are supplemented by others collateral accessory and anastomotic.

The lymphatics of the cervix and the body of the uterus converge at a point at the edge of the uterus immediately below the vaginal insertion. The bundle of collectors at first follows the uterine artery passing before the ureter toward the external wall of the basin. At the junction of the inner two-thirds and the outer third of the broad ligament the lymphatic trunks leave the artery passing on the outside a little forward. They then cross the umbilical artery and empty into a gland called the principal gland the location of which is very constant. The efferent vessels of this gland surround the external iliac vessel and extend upward outside of the iliac vessels just at the edge of the large prevertebral vessels (aorta to the left and inferior vena cava to the right). In its entire extent the lymphatic chain occupies an external paravascular position. The chains of both sides surround the large vessel and unite in a median line in a common retrovascular trunk which ends in the cistern of Pecquet.

The collateral channels of the cervix are two: the posterior and the retrouterine. One forms the hypogastric network with lymphatics about the uterus and empty into one of the glands situated at intervals in the branching of the hypogastric artery. From there the efferent vessels go toward the promontory along the internal border of the common iliac vessels.

The other channel is situated medial to the former and follows the superior border of the sympathetic hypogastric trunk until it reaches the vicinity of the promontory where it enters a gland attached to the common left iliac vein.

The efferent vessels unite with the efferent vessel of the first collateral channel to form on common channel which follows the internal border of the common iliac vessels and may be called the internal paravascular current. Above the promontory the collectors go to the outside along the iliac vessels and empty into the principal current.

The two currents—principal and accessory—unite at times by anastomotic channels which are very constant in type.

In the body of the uterus the utero-ovarian channel leaves the uterine cornua and follows the utero-ovarian vessels in the broad ligament and the iliac fossa. At the inferior pole of the kidney the collectors turn inward and follow the ureter and descend branching to empty into a gland situated below the large prevertebral vessels. The efferent vessel from the gland surrounds the aorta and from behind joins the principal channel before it empties in the cistern of Pecquet.

The conclusion drawn from these findings is that at operation the glands should be removed completely and that if irradiation is employed it should be directed to the principal lymphatic chains into which the lymphatics of the body and the cervix of the uterus empty.

SALVATORE DE PALMA, M.D.

Craes W P The Olshausen Operation for Suspension of the Uterus *Am J Obst & Gyn*  
933 v 137

The author has performed the Olshausen operation 130 times. In 50.2 per cent of the cases it was done for the correction of general polyptosis. The other cases include in the order of frequency: simple retroversion, anteversion with retrocession, placental inflammation, uterine fibroids, ovarian tumor and extrauterine pregnancy. Of the 137 cases followed up examination was made in 746 at periods ranging from 10 months to about eight years after the operation.

In six of the recorded cases the artificial attachment failed to hold. Of the six failures two occurred in cases in which the cervical stump had been suspended for severe procidentia, three followed childbearing and one followed suspension for simple retroversion. In a patient who had had a previous recurrence of the ligament shortening.

In fifteen of the 370 cases one of the silk stitches became infected and in six of these the removal of the stitch was necessary. In the remaining cases the wound healed or the stitch was discharged spontaneously. In one case a small hernia developed at the through the site of the silk ligature on the side of the wound.

There are no known cases of testicular obstruction or dystocia following the operation.

There were four deaths: one from pulmonary embolism in a case of postnatal necrosis from cerebral embolism; one of prolapse with a history of endocarditis; one from probable peritonitis in a case of tuberculous salpingitis; and one from a typical streptococcal peritonitis. In the last case mentioned

the diagnosis was made when the abdomen was opened on the suspicion of intestinal obstruction. The patient died soon after the second operation. Thus it will be seen that none of the deaths could be attributed specifically to the Olshausen operation.

The author draws the following conclusions:

1. The Olshausen operation is the simplest and most rapidly performed of all the operations now in use for reposition of the uterus. In the permanency of its results it is the equal of any and is superior to many of the other procedures.

2. Its simplicity makes anatomical dissections and injury of the surrounding tissues unnecessary.

3. In cases of prolapse it permanently reduces the descensus of the uterus and effectively relieves the symptom of pelvic pressure. It may be applied to any condition of prolapse however severe.

4. When performed in the presence of a cystocele it is the chief factor in curing the cystocele.

5. The danger of intestinal obstruction and dystocia is slight.

6. The one serious drawback of the operation is the silk ligature necessary for its proper execution.

EDWARD L. CORVELL, M.D.

**Fabre S.** The Results in a Series of Uterine Fibromata Treated with Radium. (*Résultats d'une série de fibromes utérins traités par la curie thérapeutique*). *Bull Soc de biol et de gynéc de P.* 1923, xii, 69.

Fabre reports the results in seventy-eight cases of fibroma causing hemorrhage which were treated with radium. Fifty-six were treated prior to 1922. Some of the tumors were large but the majority were of medium size or small as judged by the length of the uterine cavity. The immediate results of the treatment were always satisfactory. There was no pain and no peritoneal or adnexal reaction. In seven cases the temperature was between 37.8 and 38.4 degrees C.

In twenty-three of twenty-eight cases of small fibromata an immediate and definite menopause resulted. In two the menopause did not occur until after about six months. In one case on account of the small dose of radium used there was amenorrhea for six months followed by the return of menstruation. In two cases the hemorrhage was not checked.

In forty-seven of the fifty cases of large and medium-sized fibromata the results were satisfactory. In the three in which the treatment failed operation disclosed adnexal cystic ovaries or intra-uterine polyps. These complications the author believes are contra-indications to raditherapy. Very little is said regarding the reduction of the size of the tumors.

SALVATORE DI PALMA, M.D.

**Caviglia A. J.** Tuberculosis of the Cervix of the Uterus. (*Tuberculose du col de l'utérus*). *Bull Soc de biol et de gynéc de P.* 1923, xii, 19.

Caviglia refers to a case of tuberculosis of the uterine cervix recently reported by Bottaro and Pavlovsky and reports a similar case observed by himself in 1920. His own case was that of a woman

25 years of age. The diagnosis was a tuberculosis of the genital organs associated with a tuberculous abscess of the hip. Hysterectomy with the removal of cystic adnexa was followed by recovery.

The microscopic findings in the uterus and adnexa are described in detail. The infection in the hip had been present for nine years. In Caviglia's opinion the cervical involvement was secondary to a lesion in one of the fallopian tubes.

W. A. BRENNAN

**Fau e J. L.** The Treatment of Cancer of the Cervix of the Uterus. (*Traitement du cancer du col de l'utérus*). *P. s. méd. Par.* 1923, xxxi, 461.

Of fifty of the author's cases in which radium was employed for the first treatment, twenty-five were inoperable and the other twenty-five were not operated upon because of the patient's advanced age, obesity or weakness. Five of these patients are now apparently in good health.

One hundred and two patients were operated upon. Of these eleven died soon after the operation and two died later, one of pyelonephritis and the other of progressive exhaustion. Accordingly there were thirteen deaths in all, a mortality of 12.5 per cent.

Of the eighty-three patients operated upon more than a year ago, forty-two are cured and forty-one have had a recurrence. In six of the latter the recurrence developed from four to six years after the operation. Of those who are cured, many were operated upon from ten to seven years ago.

The author further divides his cases into favorable cases in which the mobility was impaired but not sufficiently to make the case a poor operative risk, and unfavorable cases in which the mobility of the uterus was so impaired that there was doubt whether a complete operation was possible.

In the twenty-one favorable cases there were fifteen cures, five recurrences, and one death. In the thirty-five moderately favorable cases there were twenty cures, twelve recurrences, and three deaths. In the forty unfavorable cases there were six cures, twenty-five recurrences, and nine deaths.

In forty-four cases in which the author gave radium treatment after operation during the period from 1911 to 1920 a cure resulted in twenty-two. In the twenty-three cases in which radium was not employed there were fourteen cures and nine recurrences.

Fau e concludes that radium should be used in all inoperable cases because it renders life supportable, gives the patient hope, lessens pain, and sometimes effects a cure. Its use is indicated also in the moderately favorable cases in which there is doubt as to whether the condition can be eradicated by operation or the surgeon is not sure of his ability to perform a total hysterectomy. In surgically treated cases the operation should be performed in less than an hour.

The article indicates that in favorable cases the author has discontinued the use of radium.

SALVATORE DI PALMA, M.D.

**Pouey H. Surgery and Radium Therapy Combined in the Treatment of Cancer of the Uterus** (Chirurgie et curiethérapie du cancer de l'utérus) *Gy 41 1933 16*

In six cases of cancer of the cervix and one of the body of the uterus the treatment was given before hysterectomy was performed. Four cases of cervical cancer and three of the body were irradiated after the operation. In some of the cases a caustic paste of zinc chloride was applied to the diseased area in addition to the radium. The time since the treatment is from two to nine years. There was no operative mortality. Two of the patients died two and three years after the treatment.

As a recurrence developed in only two of ten cases of cervical cancer the author believes that a combination of surgery and radium therapy is considerably more effective than surgery alone. The cases are reported in detail. *STAVROPOULOS 1933 16*

**Don Idson M. and Cantl R G. Observation on Fifty Cases of Carcinoma of the Cervix Treated with Radium** *Br J M J 1933*

This article deals with the use of 1.63 mgm of radium element in the treatment of carcinoma of the cervix with the exception to the local pathological changes and the clinical change during a period of eight months. Two platinum tubs containing 53 and 54 mgm of radium element respectively and with a wall thickness of 0.5 mm and thirteen platinum needles each containing on average 5 mgm of radium element and with a wall thickness of 0.4 mm were employed. The electrodes were observed the first being exposed for eight hours to amounts of radium ranging from 133 to 176 mgm and the second for twenty-four hours to 1.6 mgm of radium. An aluminum filter was employed for the tubes but the needles were used bare. The iliac glands were irradiated according to the technique of Dael.

In the first series of cases histological examinations were made at different times ranging from one to sixty-two weeks after irradiation. Nine cases were examined both before and after irradiation. In five cases cell division was noted after irradiation and in two of these mitoses as increased. In others mitosis had ceased. Large nuclei were seen in three cases in one they were observed before radiation. Round cell infiltration was found in the perivascular edge of the growth before radiation in every case and after irradiation in all except one case. Fibrosis was not marked in this series or was there encapsulation of the neoplasms.

In the second series of cases observations were made up to forty-nine weeks after irradiation. In the majority of these the full amount of radium was utilized. There were thirty-four cases of squamous cell carcinoma and two of the columnar cell type. In twenty-two of the thirty-four neoplasms could be found. In the twelve the growth in all stages of degeneration was described. In seven of the twenty-two cases the growth was examined

after hysterectomy and in fifteen the study was based on excised portions.

In the twelve cases in which a growth was found after irradiation it was greatly reduced in size being scarcely recognizable. In four it was examined after hysterectomy and in eight examination was made on excised tissue. Cells of severe immediate postoperative removal of the radium showed no change from the condition before irradiation. On the third day mitotic figures were much more numerous and on the fourth day there were few cells which did not show abnormality of some kind. The abnormalities were all normal mitoses which was always present. Necrosis which was of the coagulation type and most marked in close proximity to the radium and an increase in the size of the other cells. After the seventh day mitosis was not seen. The nuclei were to be broken up at the end of six weeks the breaking up became noticeable. Large nuclei were most numerous immediately after irradiation. Small round cell infiltration which was always found at the periphery of the growth was present up to the ninth week after irradiation but not thereafter. In the morphonuclear cell were always seen in the breaking up core of the growth region as of irradiation. Fibrosis was increased in all cases after treatment. In specially marked cases to the radium. Encapsulation of the growth was not found but irradiation nor up to the eighth week afterwards but subsequently it was noted in five cases.

In the case of columnar-cell type growth a four-fold increase was noted after irradiation.

The clinical results were used under the heads hemorrhage, local discharge and duration of symptoms. In the eight hours of treatment subjected to hysterectomy the living and good health of the patient was observed sixteen months one of the patients died six weeks after the irradiation. In the first series of cases the beginning of treatment hemorrhage occurred in four cases in which it occurred. The latter as decreased in four cases and increased in one case. Ulceration was heralded in two and decreased in two in one it persisted. Duration is difficult to estimate but generally peaking it did not appear in any although two usually limited. The of the patient was decidedly benefited to slightly benefited four experienced a change in discharge after treatment.

Of the twenty-four of forty-one patients three were subjected to hysterectomy and two of the others were treated too recently for operation. Of the remaining twenty-eight were irradiated and fifteen of them four times in the treatment. (Ten of the latter the treatment was begun more than a year ago). Hemorrhage almost invariably yielded to the treatment. The discharge appeared even in the current in two and in the immediate future. In the results radiation is appreciated in the case of change. Irradiation was generally not altered.

From the case reported the author draws the following conclusions

1 Radium treatment prolongs life and relieves haemorrhage ulceration and diarrhoea.

The preliminary application of radium in operable cases causes the disappearance of the ulcerating growths.

3 The application of 163 mgm for twenty four hours is much more efficacious than the multiple application of the same amount for eight hours

4 The use of 1763 mgm of radium may cause the complete disappearance of the growth from the cervix within a few weeks. A definite series of changes can be demonstrated in the cell leading up to its destruction.

5 Little or no effect of the radium upon the thyroid gland to be noted

6 Retrogressive changes occur in the cells before the fibrous changes therefore they are not due to the fibrous changes

Cardiac myocytes are more vulnerable to ischemia than the uterine musculature.

A JAMES L R IN M D

Perrin, A. The Treatment of Inoperable Cancer of the Cervix Before and Since the Use of Radium 1900-1918 (1st time published during 1900-9-8). R. f. 5 d. g. v. e. t. d. l. t. q. 3. x. 32.

Perkola has made a comparative study of aseptic inoperable carcinoma of the cervix treated by pilular, intra-meal, and with radium respectively. Of the first group comprising fifty cases thirty presented a crater with beginning infiltration on the parametrium, a doubtful case and twenty presented a cauliflower mass at the os. The youngest patient was 34 years of age and the oldest 50. The palliative treatment consisted in cauterization by various agents—the actual cautery, the electric cautery, nitric acid, silver nitrate tincture of iodine and formal—preceded by curettage of the fragile cervical tissue and followed by iodoform or zeroform tamponade of the vagina. Offensive odors were mitigated by the application of peroxydate and acetone. Despite a careful technique frequent complications developed—vaginal burns in two cases and hæmorrhage immediate or delayed in fifteen cases. This form of treatment resulted in temporary improvement in twenty-two cases but was without benefit in twenty-eight. There was practically no diminution in the severity of the pain. Subsequently fifteen of the patients could not be treated but because of the nature of the lesions the author entertains no doubt as to the ultimate outcome. In the remaining thirty-five cases the shortest survival following cauterization was twelve days (death from hæmorrhage) and the longest eighteen months (death from cachexia). The average was about eight months.

The second group of cases those treated with radium numbered forty six Of these twenty five presented a crater with parametral infiltration and

twenty one a cauliflower mass at the os. In the twenty two traced cases with parametrial infiltration the shortest period of survival following the treatment was six months and the longest five years and seven months. The average was twenty eight and one half months. Three of the patients are still living and well five and one half years five years and seven months and six years respectively after the radiation. In the nineteen cases of cauliflower mass at the os which could be traced the shortest period of survival was three and one half months and the longest four years and one month. The average was fourteen months.

The comparison shows a distinct prolongation of life by radium treatment and a cure of three cases in a series of forty six. In thirteen cases there was total disappearance of the lesion for twelve months and in nineteen temporary improvement in the diseased area. In only eleven cases was there no appreciable improvement. Hemorrhage occurred between the ninth and sixteenth month after radiation in only four cases. In the three patients who are still living radium caused total cessation of the pain and in thirty three others it decreased the severity of the pain. In thirteen cases there was no improvement.

J. W. A. RICE, M.D.

Monod M R and Gosset M A The Treatment  
of Cervico Uterine Cancer by Hysterectomy  
Following Radium Therapy (Su le t me t du  
er ce ou t ér n p a l hyst ect me c s é c t à  
l ur th p e) *B il l S de h d P*  
0 3 xlv 6 0

In the treatment of cervical cancer the authors apply radium from four to six weeks before performing a hysterectomy. The technique is that of Regaud. Three emanation tube are placed in the vagina and one is introduced into the uterus and left *in situ* for four or five days. The average dose is 50 mc. The applicators are removed daily for cleaning and at the same time vaginal and uterine douche are given.

A high temperature during the course of the radium treatment seems to indicate infection of the genital tract. In the two fatal cases reported the temperature was 40 degrees C and death was due to infection. In cases in which there is a tendency to pyometrium a Mouchotte drain is used.

This article reports the results in twenty-eight cases from two to twenty-six months after treatment. The majority of the patients were considered poor surgical risks because of the extent of the lesion or because of poor general health. Twenty-two were between 40 and 50 years of age, five were over 50 and three under 40. The youngest was 26 years old. The diagnosis was confirmed by microscopic examination.

Of the thirty cases irradiated a total hysterectomy was done in twenty seven. In three only an exploratory laparotomy was possible as the iliopectic chains of gland were affected. One of the three patients subjected to laparotomy died fifteen

days after the operation the two others are still under radium treatment

In some of these cases the operation is difficult on account of marked sclerosis caused by the radium around the uterus, ureters and bladder

In the twenty seven cases of hysterectomy there were two deaths. The twenty five other patients are all apparently doing well. Microscopic examination has shown a persistence of cancerous cells in only seven cases. Upon examination the glands removed at operation proved negative.

From the study of the six cases the authors draw the following conclusions:

The application of radium renders non operable cases operable

2. It makes it possible to perform an operation less extensive than the Wertheim hysterectomy

3. It reduces the chance of recurrence

4. Operation after radium therapy is justified because it permits postoperative radium treatment and the removal of organs or chains of glands in which involvement is suspected

S. LATVORE DI PALMA M D

#### Auvray Rare Forms of Sarcoma of the Uterus (A)

Pos d q lques f mes rar s du s r c m le  
(uterus) B H S c d o l s t i d g y f c d i r 1923  
280

Three unusual cases of sarcoma of the uterus are reported viz (1) a myosarcoma which had developed exclusively at the expense of the anterior lip of the cervix (2) an enormous sarcomatous cyst implanted in the fundus of the uterus and (3) a sarcoma of the body of the uterus associated with an epithelioma of the cervix. In the first case the sarcoma presented at the cervix and had the appearance of a cervical polyp in the vagina. In the second case the growth was found at operation on 6 liters of thick chocolate colored liquid were evacuated from it. The third tumor described was found at operation on a 30 year old woman for epithelioma of the cervix. In every instance the sarcomatous nature of the growth was demonstrated by histologic examination.

S. TO D P L M A M D

#### Volje G Late Haemorrhage in a Case of Subtotal

Hysterectomy (Morris T. J. d. in un c so di  
ister c m subtotal) A k d i o l s t g  
9 3 x o

The author reports a case in which a severe hemorrhage occurred thirteen days after hysterectomy just as the patient was being discharged from the hospital. A secondary lapotomy revealed a bleeding left uterine artery. This was ligated and the patient recovered.

After excluding technical errors in surgical technique alterations in the blood vessels walls hamophilic and secondary infection the author comes to the conclusion that the hemorrhage was due to a trophic disturbance of the tissues of the cervical stump due to the ligation.

SAL TO D PALMA M D

#### Cotte Four Cases of Uterovaginal Fistula Following Hysterectomy (Cotte C. d. fistules uterovaginales consécutives à l'hystérectomie) L. o ch 1923 vt 38

In one case in which the ureter was accidentally sectioned during a hysterectomy the author implanted it into the bladder. In three other cases of involvement of the ureter in which this was impossible he performed a homolateral nephrectomy. He believes that implantation is the procedure of choice whenever it is possible.

LOY L L D S 7 M D

#### Gayet Two Case of Uretero Vaginal Fistula Following Hysterectomy (Ureter et le fistule urétéro-vaginales consécutives à l'hystérectomie) L. j 9 3 353

The first case was that of a woman 43 years of age. Hysterectomy was followed by phlebitis which persisted for two months and by the development of a uterovaginal fistula. Urine passed by both the urethra and the vagina. Permanganate solution injected into the bladder did not pass by the vagina. The vaginal fistulous orifice was not distinctly made out. Cystoscopy showed the bladder to have an accentuated right lateral horn. The left ureteral orifice was easily catheterized and gave clear urine. In the right ureter the catheter penetrated only 4 cm and no urine was withdrawn. To determine the function of each kidney a catheter was left in the left ureter and the bladder and the urine from the vagina collected separately. No urine drained from the bladder catheter. Microscopically the urine from the left kidney was clear. That from the right kidney (vaginal urine) showed numerous colon bacilli.

The right kidney which was removed under ether was the size of a small almond showed the yellowish white surface of nephritis and distention of the calices of its pelvis. The patient made an uneventful recovery the fistula healing spontaneously.

The second case was that of a 48 year-old woman who after an operation for a neoplasm of the uterine cervix urinated through the vagina. At intermittent periods small quantity of urine drained from the urethra. Cystoscopic examination showed the bladder to be normal and revealed the ureteral orifices plainly. In the right ureter catheter was arrested at 1 cm and in the left at 10 cm. No urine drained from either catheter. The base of the vagina showed a slit cleft with two openings on the right and left. Into the right fistula from which urine was welling a sound was readily passed upward. The X-ray showed that the catheter was in the right ureter. The function of the right and left kidneys as determined separately in the same manner as in the first case. No urine drained from the bladder.

The function of the right kidney was the same that of the left. The urine from the right kidney was infected while that from the left was clear. At another examination the bladder was found to contain 75 cc of urine which showed 63 gr of urea.

and 72 gr of chlorides. The intermittent presence of bladder urine indicated that the ureter was not transversely sectioned but had a lateral slit which permitted the escape of urine into the bladder in certain attitudes of the body.

The author considered that a plastic operation would endanger the function of the good right kidney and therefore advised the patient to wear a urinal.

These two cases emphasize the importance of making tests of the renal function before operation is decided upon. **WALTER C. BURKET, M.D.**

### ADNEXAL AND PERI UTERINE CONDITIONS

**Moulounguet Doléris, P.** The Gland of Internal Secretion of the Human Ovary (La glande à sécrétion interne de l'ovaire humain). *Gynecology* 1933, 19.

In seventy-five cases of ovaries removed by operation, the author found the gland of internal secretion of the ovary in lipid bodies which are most numerous in the ovarian stroma and present although less numerous in the corpus luteum. In different ovaries there was considerable difference in their number and size but they were always present a fact not true of the corpus luteum.

In the author's opinion the physiology of the ovary is limited to the function of reproduction.

The variation in the ovarian gland seems to be the cause of certain structural differences. Mucous hyperplasia of the uterus and fibroid are often associated with hyperplasia of the ovary. Ovarian hyperplasia results from an increase in the number of the lipid bodies or yellow masses and extensive development of the external cellular layer of the corpus luteum. On the other hand, uterine hemorrhages though at times associated with hyperplasia of the ovary seem very often to be independent of ovarian changes. **SALVATORE DI PALMA, M.D.**

**Hornung.** Intrapertoneal Hemorrhages of Ovarian Origin (L'hémorragie intrapéritonéale d'origine ovarienne). *Gynecology* 1923, 31, 39.

The author reports two cases of intraperitoneal hemorrhage due to a follicular cyst of the ovary. The first was that of a 38-year-old woman who following a normal menstrual period continued to bleed for two weeks. A tumor was made out to the right of the cul de sac. After an exploratory puncture in which blood was obtained a laparotomy was performed. The tubes are normal but the right ovary was found to form part of a hematocoele. Subsequent sections demonstrated the absence of pregnancy.

The second case was that of a 38-year-old woman with the first except that the cyst almost entirely absented of ovarian substance.

Theoretical causes given for the condition are arices, retroversion tumor, heart and blood vessel diseases, leukemia, intoxications and sexual abuses. **SALVATORE DI PALMA, M.D.**

**Vanverts, M. J.** Bilateral Cystic Epithelioma of the Ovary. Extirpation with Cure at the End of Nine Years (Epithélioma kystique bilatéral de l'ovaire extirpé avec guérison se maintenant au bout de neuf ans). *Bull. Soc. d'obst. et de gynéc. de Paris* 1933, 245.

A 36-year-old nullipara in apparently good health complained of an abdominal swelling which had become very noticeable for a month. The history included also profuse leucorrhoea for the last few years, lactation for four or five days after menstruation, fleeting abdominal pains and the loss of 5 kilo.

Examination revealed enlargement of the abdomen due to a tumor arising in the pelvis. The mass extended to the umbilicus and was larger on the left side than the right. Vaginal examination indicated that it had its origin in the uterus. All other examinations were negative. A diagnosis of fibroid was made.

At operation a large cystic mass of the right ovary adherent to the intestines, mesentery and broad ligament and a smaller adherent cystic mass of the left ovary were found and removed with difficulty. No histologic examination was made. The postoperative course was normal. When the patient was seen again eight years later she was apparently in good health. **SALVATORE DI PALMA, M.D.**

**Spinelli, M.** Sarcoma of the Ovary with Multiple Metastases Cured by Roentgenotherapy After Surgery (Sarcome ovarien à métastases multiples guéri par la radiothérapie après l'opération). *Acta chirurgica* 1923, 11, 154.

In the case of a 33-year-old woman a tumor of the left ovary 35 cm in length and 25 cm in diameter was removed June 8, 1922. Multiple intestinal adhesions and metastases around the sigmoid and a metastasis about the size of a fist closely adherent to the small intestine were found. The metastases were not removed on account of surgical difficulties.

From June 19 to 28 a total of twelve hours of deep roentgenotherapy—40 cm distance, 0.5 mm copper and 3 mm aluminum filter, Coolidge tube, 90,000 kV, 2 ma—was given in four sites: abdominal, dorsal and right and left lateral. The patient recovered and was still in good health to June 28, 1923.

Microscopic examination showed the tumor to be a small round cell sarcoma. Two photomicrographs of sections of the growth illustrate the article.

**SALVATORE DI PALMA, M.D.**

### EXTERNAL GENITALIA

**Leriche, R.** The Treatment of Kraurosis Vulvae by Sympathectomy of the Hypogastric Artery. The Result at the End of a Year (Traitement du kraurosis vulvaire par la sympathectomie de l'artère hypogastrique. Résultat à la fin d'un an). *Lyon médical* 1933, 4.

In the case reported bilateral sympathectomy of the hypogastric artery was done. The operation had a good immediate result being followed by rap-



# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Cou n ud P and Clogne R Hepatic Function During Pregnancy (C n t but n à l étud d la f i t n h é p a t i c a u s l i t g e e )  
G é d b t 1923 v i 372

The authors review and interpret the findings made to date in research on the function of the liver during pregnancy.

In the later months of pregnancy Croimican and Iopper found urological signs of biliary retention in 20 per cent of normal pregnant women. In women presenting clinical signs of hepatic insufficiency the percentage was higher. The coagulability of the blood in pregnancy is normal or increased and in the last three months the power of fibrin formation is increased. The blood sugar during pregnancy is slightly less than normal. In lactating women it is slightly above that of pregnant women. In pathological cases the results are very contradictory. Protein metabolism tests in pathological conditions such as pernicious vomiting and puerperal infection show nitrogen retention.

Acidosis is found in all cases of pregnancy with intoxication, serious infection, pernicious vomiting, clamping or shock, as in these conditions there is a disturbance of liver function.

SALE RE DI PAL IN MD

W d E Marri g Pregnancy Parturition and Tuberculosis L i 9 3 55

The data of investigations made among tuberculous women of the poorer class show that marriage alone is unlikely to affect their condition and that if it does have any influence it is twice as apt to cause improvement as deterioration.

Pregnancy and parturition however are apt to make it worse, there is 50 per cent chance of the against a 10 per cent chance of improvement. However 50 to 2 per cent of the women led of exacerbation caused by child bearing the unfavorable influence of parturition is not often fatal.

The advisability of inducing abortion in the case of tuberculous women seems very questionable. The results of marriage have not been fully investigated but in 47 per cent of the cases still there is no effect in 3 per cent the patient is improved and in 50 per cent the condition is made worse. In only 66.6 per cent did lactation appear to exert a less than unfavorable effect.

The children of tuberculous women are often times affected by tuberculosis as the case of the following. Of 200 such children investigated 11.5 per cent were negative, 34.5 per cent tuberculous (25 per cent bed of the father) and 54 per cent were suspects. On the whole the increased risk to

the child from breast feeding by a tuberculous mother seems negligible. Thirty-five per cent of child on breast fed by tuberculous mothers were negative while 3 per cent of bottle fed children of tuberculous mothers were negative.

In Ward's opinion it is certain that the husband will become infected unless he is congenitally immune or already harbors a smouldering infection.

In conclusion the author states that if milk is available it is wise for the tuberculous woman to nurse the child for at least six weeks but this should never be done longer than eight weeks.

RAYMOND F WATKINS MD

Voron The Management of the Pregnant Woman with Pulmonary Tuberculosis (Cond te à ten r h z la tube ulcus pulmo a l e en c e t ) G v c i obst 19 3 v i i 41

Pulmonary tuberculosis may become very active during pregnancy or after delivery.

With regard to their opinions as to the treatment of the tuberculous pregnant woman the author classifies obstetricians and clinicians into three groups. One group which includes Rest, Bernard, Dumarest, Linaud, Couvelure, Hergott and Fruhnscholz are fundamentally opposed to interruption of the pregnancy. Dumarest maintains that the infant of a phthisical mother is endowed with a certain immunity and that eventually this will become sufficient to immunize the race against tuberculosis. Another group argues against abortion is that if the tuberculosis is mild or in its initial stages the woman will eventually recover without the treatment and if the tuberculosis is extensive death will ensue regardless of intervention. It is claimed also by this group that in successful abortion is often followed by the same complication as a normal full term delivery.

Another group of obstetricians and clinicians favor the apertic abortion in all cases, arguing that it is most important to safeguard the life of the mother since the future of the fetus is uncertain and that gestation unquestionably aggravates pulmonary tuberculosis. They agree with Margliano that therapeutic abortion is indicated also because it is impossible to prognosticate with accuracy the extent and severity of the pulmonary lesion and its subsequent behavior in every case. Not to act in the presence of this uncertainty is to expose the patient to an unnecessary risk.

Between these two extremes is the third group of men who while admitting the seriousness of pregnancy in a tuberculous woman believe that the fetus should be given due consideration and that each case should be judged individually.

In presenting his own opinion the author states that induced abortion is seldom fatal and never leads



to quick death in the case of a tuberculous woman such as may occur following full term delivery. In cases in which death occurs during the earlier part of the month the abortion is usually performed in the course of gestation. In a very large number of cases distinct improvement in the pulmonary condition is noted following abortion. Voronoff states that therapeutic abortion is strictly indicated in the cases of women without financial means whose gestation has not passed the third month and who are subject to a bilateral pulmonary lesion which shows a tendency to extend but is recently curable under favorable circumstances. When this procedure is indicated up to the ordinary measures are generally employed but occasionally hysterectomy is the method of choice particularly in the cases of multiple abortion which are already in the third and fourth months of gestation. For ectopic cases sterilization without hysterectomy has its advantages.

JAMES V. RICCI, M.D.

**Polak, J. O.** How the Pathology of Ectopic Pregnancy is Found in Ectopic Gestation. *Bull. M. J.* 1935, 15, 433.

On the basis of a study of 400 cases of ectopic pregnancy the author summarizes the cardinal symptoms as follows:

1. A menstrual delay or prolonged menstruation.

2. The sudden onset of pain in the abdomen usually in one of the lower quadrants with or without shock and followed by the discharge from the vagina of a dark bloody fluid which does not clot.

3. A cervix sensitive to the lightest movement on vaginal examination.

4. A tender mass between the bladder or rarely in front of the uterus which it displaces.

5. A slight elevation of the temperature and a leukocytosis of 15,000 or more immediately after the attack of pain.

Excitation of the paravaginal area in the size of the tumor mass or ureter while the patient is under anesthesia.

When the ovum is expelled in its progress through the tube it immediately attempts to enter into the mucosa and the latter being unprotected by a well formed decidua allows it to penetrate into some of the smaller arteries. This is followed by hemorrhage into the decidua and in the tube the tube contents which stretch the tube and gives rise to some of the earliest symptoms a feeling of soreness, tenderness and cutting knife-like pains due to the attempt of the tube to expel its foreign content. The bleeding from the tube instead of draining through the uterus comes out through the free end of the tube gravitates to the cul-de-sac and with the tube which displaces it and is a cardinal feature of the increased weight displaces the uterus forward and makes up the cul-de-sac mass of the ectopia. The blood in the cul-de-sac is a chemical reaction in the peritoneum which excites peritonitis and causes the symptoms of peritonitis.

Some of the leukocytes and sensitization of the cervix. The overlying peritoneum becomes a clear white and sensitive and when the cervix is moved the uterus sacral which is covered by it responds with pain and spasm. The ureter in the tube is finally transected in the uterus. The decidua then becomes intensely congested and bleeds and the cervix softens and opens. If the ovum in the decidua is cut off completely and there is usually a hemorrhagic shock which does not.

HARRY W. FRY, M.D.

## LABOR AND ITS COMPLICATIONS

**Schwartz, O. H.** and **Krebs, O. S.** Scopolamine Morphine Semimarcol. Report of Its Use in the Third Trimester Deliveries in Barnes Hospital. *J. Am. Med. Ass.* 1935, 103, 1083.

The authors use in their work scopolamine stable Roche or scopolamine (hyoscine) hydrobromide in ampoules and morphine narcotina mecate in 1/2 gr doses or morphine in 1/2 gr doses. In the cases of primiparae these are administered when the uterine contractions are strong and occur at regular intervals and usually when there is at least two finger dilatation. In the cases of multiparae the procedure is usually begun with the first regular contractions that are painful.

The patient is always prepared for delivery before seminarcosis is begun and after the usual preparation is completed to the delivery room. Cotton moistened with oil is placed in her ears and her eyes are covered with gauze held in place by adhesive strips. The initial dose of scopolamine is 1/2 gr or 1/2 cc of the scopolamine stable Roche. The scopolamine hydrobromide contains 1/2 gr to the cubic centimeter and is divided by the authors in the medium dose (1/2 gr) for the average woman. With the first injection is given separately or combined 1/2 gr of morphine, morphine, morphine or 1/2 gr of morphine sulphate.

The second injection is given usually as 1/2 gr forty five minutes after the first and is usually as 1/2 gr the first. The morphine narcotina mecate or morphine is not repeated after the first injection.

Before the second injection 1/2 cc of each of the templatated subsequent injection on the patient is requested to put her index finger to the tip of her nose her eyes being covered. If she succeeds in doing this promptly she still retains a conscious condition and the contemplated injection is given. In most cases this stage is reached after the administration of the third injection but in not small number before the third injection.

The third injection is usually given in fifteen minutes after the second.

After the third injection most patients are sufficiently scopolaminized for the average woman. In most cases the first stage of labor is entirely over nearly over and the time is close at hand at which the semimarcosis should be deepened to complete the anesthesia by the use of the general anesthetic.

However there are numerous cases in which the first stage of labor is protracted for many hours even for a day or two. The scopolamine method has proved most valuable in the cases of primiparæ with ruptured membranes and a first stage lasting from twenty-four to forty-eight hours. It is in these cases also that the administration of the drug must be watched most carefully.

The authors believe that the loss of locomotor coordination marks the one boundary of seminarcois. The patient must cross this boundary which is just enough and must be kept from crossing the other boundary which is too much. The other boundary is reached when during a labor pain the pupils no longer show the usual dilatation at the height of the contraction because they are already dilated to the maximum by the action of the scopolamine on the terminals of the third nerve in the iris. Keeping the patient within this narrow zone constitutes scientific seminarcois. During the second stage of labor great care must be exercised not to induce too deep general anesthesia.

The contra-indications to the use of scopolamine morphine seminarcois are premature deliveries, uterine inertia, eclampsia, placenta prævia and heart disease complicating pregnancy.

In the authors' opinion scopolamine morphine seminarcois is the most effective method of relieving the pain of the first stage of childbirth. In the first thousand cases reported amnesia and other perfect results were present in 80 per cent. In the second thousand the results were perfect in 85.3 per cent cases and poor in 5.07 per cent.

In many cases of multiparæ the authors use nitrous oxide analgesia very extensively. In some of the longer and more difficult multiparous labors they use the regular scopolamine morphine method while in others they combine the administration of nitrous oxide with a modified scopolamine seminarcois in which the scopolamine is complemented from the beginning with nitrous oxide or after the patient is lightly under the influence of scopolamine she is kept at that level and her pain controlled until delivery by nitrous oxide inhalations. At the time of pulsion chloroform in very small amounts or nitrous oxide or ether should be added.

The authors believe that this method can be carried out only by trained obstetricians in an obstetrical hospital and that it should be used only by those who are willing to watch the patient closely from the onset of labor until its termination or those who have an organized hospital staff or trained assistants at their command.

In primiparæ when seminarcois is employed labor is best terminated by episiotomy and a perineal forceps delivery. This procedure however is by no means necessary. Many of the patients will be delivered spontaneously. Asphyxia is not increased in frequency although slight oligopnoea is sometimes noted.

The chief disadvantage of the method is that it is time consuming and the patient must be constantly

watched throughout labor by those who are familiar with the method. Few but obstetricians are willing to give the necessary amount of time and individual attention to one patient. **LOLAND S. CROW, M.D.**

**Bohar B. F. and Mecker W. R. The Value of Sacral Nerve Block Anæsthesia in Obstetrics. J. I. W. 1931, 9, 131-139.**

The authors tried six different methods of inducing anesthesia and studied the results in obstetrical operations and in normal labor pain.

The first method was the association of a low epidural injection with transsacral nerve block of the lower four sacral nerves. The patient was placed on the left side in a modified Sims' position. The anesthesia resulting included the entire pelvic floor and wall of the uterus, the pain of labor being entirely controlled.

With this method each of a series of sixteen patients was given from 60 to 85 c.c. of a 1 per cent procaine solution. Ten minima (0.6 c.c.) of epinephrin for 100 c.c. of solution were added in all cases. The average duration of anesthesia was two hours and twenty minutes. In a second series of seventeen cases the addition of a 0.4 per cent sodium bicarbonate solution did not prolong it.

In the second method epidural injections were given without blocking the nerves. Each of a third series of twenty-two patients was given from 40 to 50 c.c. of 1.5 per cent procaine with 0.4 per cent bicarbonate solution. The average duration of anesthesia was one hour and fifty-seven minutes. A fourth series of twelve patients were given from 30 to 35 c.c. of 2 per cent procaine solution with 0.4 per cent bicarbonate. The average duration of anesthesia was one hour and fifty-five minutes. The fifth series of twelve patients received from 40 to 50 c.c. of 1.5 per cent procaine without bicarbonate. In a sixth series of ten cases the formula was essentially the same as that for the fifth series except that epinephrin was used.

From the standpoint of the anesthetic better results over a slightly longer period of time were obtained by the transsacral method. The addition of the sodium bicarbonate was of no advantage. The difficulty in the execution of transsacral block in the parturient makes the epidural method the more practical even though the height of anesthesia is variable.

The ninety cases studied were not selected being taken in succession. The total number of patients delivered during this study was 162. Sixty per cent of them were primiparæ, a percentage higher than the general average of the institution which is 45.

The authors state that all obstetrical operations in which the operative field lies within the area innervated by the sacral nerves can be painlessly performed under sacral nerve block anesthesia. The unmistakable relaxation of the pelvic floor facilitates any operation attempted by way of the genital tract. Twenty-one forceps operations were performed of which ten were low eight middle and

three high forcep deliveries. In only three instances was any other anæsthetic employed. Ether was administered to one patient before the possibilities of block anæsthesia were appreciated. In another case ether was necessary because the block anæsthesia began to wear off before the forceps delivery was completed. The perineal relaxation not only facilitated the application of the blades but shortens the duration of the operation and reduces the number of perineal tears. The patient continued to have good uterine contractions until she was operated on immediately after the injections and the operator was able not only to apply traction during each contraction of the uterus but also to induce the patient to cooperate by bringing her abdominal muscles into action. Intra uterine manipulation and repair of the pelvic floor were also satisfactorily done. Another argument for the method was the absence of harm to the baby from the anæsthetic. In the past the operator has often been hurried in difficult forceps cases because of the danger of anæsthetizing the child.

During normal labor the patient was instructed to bear down and to exert greater voluntary effort during the uterine contractions. In the absence of proper instruction and encouragement the parturient was apt to rest and delay the progress of birth until the pains were felt again. The continual attendance and encouragement of the obstetrician or his aids at this juncture were therefore of the greatest importance.

The effect on uterine contractions was important. In the majority of cases there was a nearly complete cessation of contraction within ten minutes after the injection was completed. This limitation rarely lasted more than twenty minutes; the contractions then gradually increased in frequency and duration until after a short time they proceeded normally.

The feature of greatest difficulty was the election of the proper time to induce and the induction. There was a tendency to induce it too early in the cases of primiparae and too late in multiparae. In many cases also the time of delivery could not be accurately predicted. However, it was soon found that the injections could be repeated in three cases a third injection as given. The injections should not be repeated needlessly.

The duration of anæsthesia averaged approximately two hours.

It was decided that in average cases the maximum benefit from the injection was obtained when dilatation of the os had reached at least 7 cm in primiparae and 4 cm in multiparae.

When as a result of the patient's cooperation labor terminated during the period of anæsthesia it was without the usual outcry and often the patient was unaware that she had been born. Other patients felt dull pressure at the head slip over the perineum. In most cases the perineum slid back from the head with such ease that the obstetrician was surprised because a tear had seemed inevitable.

ROLAND S. CROOK, M.D.

Goethals, T. R. Manual extraction of the placenta. *J. Obst. & G.* 93: 32.

Manual extraction of the placenta following delivery carries with it the possibility that the operator may find himself dealing with placenta accreta, a condition in which the patient's life may be endangered by shock and hemorrhage.

Clinically placenta accreta occurred three times in the Boston Lying-in Hospital series: once in 8182 pelvic deliveries in the hospital, twice in 16486 deliveries in the outpatient department or once in 8223 deliveries. Unfortunately no autopsy was secured to prove the diagnosis pathologically.

No certain method has been found by means of which the presence of a placenta accreta can be foretold. From a clinical standpoint adherent placenta is a relative term. Not until the operator begins to take out the placenta can he tell whether he will find a placenta which is easily peeled off, one which is firmly adherent and must be dug from the uterine wall or one which is so blended with the uterine wall that removal of cleavage can be made out. This may be as true of placenta partially detached as of the completely unseparated.

One case in four of the hospital cases and two cases in five of the outpatient cases showed some degree of uterine infection after delivery. So far as the hospital cases are concerned this is an incidence almost five times that occurring in controlled pelvic deliveries in which the placenta was not manually extracted and although no control series is practicable for the outpatient case the difference in surrounding management could seem to account for the differences in results. Certainly the hospital and outpatient figures are remarkably parallel.

Such infection as occurred in these cases was usually of relatively mild type. Death occurred in only one case, a hospital delivery in which the uterus was ruptured. It seems probable that most of the infection was due to mere retention of the secundine.

In case of retained unparted placenta without hemorrhage the M. J. N. C. B. to method of umbilical incision is the preferable choice. This should be total, in which the partial separation with slight hemorrhage has occurred, but it can be replaced by traction in a case of brisk hemorrhage with no important necessity. Whether injection will serve to bring away a placenta accreted quite reliably.

In a case of retained placenta in which jeton is not caused by separation within two hours of the birth of the child, manual extraction is indicated. This has had a preliminary effect in the method of letting such a case be removed by the method of pulling the uterus up to the placenta.

Manual traction should be used sparingly, tried out without great difficulty. Should separation of the placenta be impossible or difficult, the placenta is torn and attempts

at removal should be abandoned at once the uterus packed tightly with gauze as an emergency measure and laparotomy with hysterectomy performed with transillumination before during or after the operation as indicated

EDWARD L. CORRIELL, M.D.

Audebert J. L. The Uterine Scar After Cesarean Section (La cicatrice utérine après la section césarienne) *Gy et Obst* 1923 4 487

The author reports the histological findings in thirty eight cases of uterine scar due to cesarean section. Twenty nine showed complete muscular regeneration, three incomplete muscular regeneration and only five a fibrous scar. Even when complete muscular regeneration occurs there still remains the danger of intestinal obstruction due to the formation of peritoneal adhesions and bands and late deep infections from sutures. These however are rare. More common are accidents during pregnancy and labor.

In two cases traced by the author there had been a subsequent pregnancy with a shoulder presentation due to fixation of the uterus. Abortion occurred in eight of seventy seven cases reported by Van Ieuwen and in two cases reported by Morrison Lacombe. It did not occur in the cases studied by the author.

Premature labor occurred in two of nineteen cases reported by Mariot and in eight of fifty reported by Morrison Lacombe. The incidence of rupture of the uterus in the last twenty years was 6 per cent.

In conclusion Audebert states that in spite of the possibility of suppuration due to infection the uterine scar is often good both histologically and physiologically. However as it is impossible to know which scar will hold and which one will not the patient should be kept under close observation during the last months of a subsequent pregnancy in order that if necessary intervention may be done before the beginning of labor.

SALVATORE DI PALMA, M.D.

## PUERPERIUM AND ITS COMPLICATIONS

Brouha M. T. Modern Conception of Puerperal Infection (L'acceptation moderne de l'infection puerpérale) *Gy et Obst* 1923 vi 1

Illich F. The Diagnosis and Prophylaxis of Puerperal Fever (Le diagnostic et la prophylaxie de la fièvre puerpérale) *Gy et Obst* 1923 vi 36

Alfieri F. The Therapeutic Measures to Combat Puerperal Infection (Les mesures thérapeutiques pour combattre l'infection puerpérale) *Gy et Obst* 1923 9 3

Illich states that in about 50 per cent of the cases of puerperal fever the streptococcus pyogenes is the only organism found. The bacteria present in the others given in the order of their frequency are the streptococcus aureus and albus the colon bacillus the gonococcus anserinus and the specific organisms of the infectious diseases. Among the latent carriers the dysentery typhoid and tetanus bacilli. The anaerobes include bacillus per-

fringens vibrio septique bacillus nebulosus and aerobic streptococcus staphylococcus parvulus and others. Organisms other than the streptococcus pyogenes rarely occur alone.

The sources of the pyogenic bacteria Brouha believes are persons suffering from an infectious process such as puerperal fever erysipelas phlegmon furuncles acne and suppurating wounds persons convalescing from infectious diseases and carriers. The bacteria are distributed by objects or liquids and can be carried a considerable distance. Under the influence of light and desiccation they gradually lose their vitality. They escape death only when they re infect a healthy person or become adapted to a saprophytic life.

Brouha classifies the infections as contagious and endogenous. The majority of the severe infections are of the contagious type. Causes of the endogenous infections are endocervicitis ulcers of the cervix degenerating infected fibroids pneumonic processes otitis media mastitis parametritis and appendicitis. As these infections may be produced by continuity or by way of the blood and lymph streams they may be classified as local metastatic and general.

With regard to the question as to whether the vaginal bacteria may provoke such an infection Brouha comes to the conclusion that pathogenic organisms in the vagina are either destroyed or adapt themselves to a saprophytic life but that under favorable circumstances the saprophytes may become virulent.

With regard to the pathology Brouha discusses the different parts affected. In the endometrium a septic and a gangrenous inflammation are distinguished and in the uterine muscles a metritis a metro lymphangitis and a metro phlebitis. The ovaries and tubes are most often affected by peritonitis and less often by cellulitis of the broad ligament or direct extension from the mucosa of the uterus. Infection by the lymphatics usually causes pelvic cellulitis. Infection of the pelvic tissues by the venous portals giving rise to venous thrombosis is less common. The bacteria causing pelvic abscesses are in the order of their frequency the streptococci the staphylococci and the colon bacillus. With regard to the gonococcus there is as yet no consensus of opinion.

Infection enters the peritoneum usually by way of the lymphatics of the uterine muscles and more rarely by direct extension from the tubes. In the very acute forms particularly those due to the streptococcus the lesions are few and there is very little exudate. When the evolution of the condition is less rapid the lesions are more extensive and the quantity of exudate is considerable. Phlebitis is probably always associated with some other pathological condition but in certain cases the symptoms of the venous infection overshadow the others.

As preventive measures the author recommends the ordinary methods of prenatal prophylaxis the interdiction of coitus at least two months before

the expected delivery and strict asepsis is during delivery. He does not approve of the use of antiseptics or douches except in cases of definite infection of the vagina or cervix.

Hauch states that bacteriological examinations do not prove the presence of puerperal fever as the same bacteria may be cultured from the vagina and lochia of women who have had a normal puerperium. Cytologic examinations do not give any further information. Consequently the diagnosis must be based on the clinical picture. The diagnosis of puerperal fever is justified if the temperature rises to 38 degrees C the second evening of the puerperium and extragenital causes for this rise can be excluded. With regard to the diagnosis Hauch discusses puerperal fever in relation to infection of the external genitals, the uterus, the adnexa, the veins, septicæmia and pyæmia.

In discussing the treatment Hauch states that every precaution usually taken with regard to the patient and the attendant in cases of acute contagious and infectious diseases should be observed in puerperal fever. In the gravest cases of this infection nothing in medicine or surgery has been found satisfactory.

ALFIERI discusses the prognosis of the different types of puerperal infection. In his three clinics the mortality in cases of fever above 38 degrees C was 11 per cent in the postpartum cases and 14.4 per cent in the postabortion cases. For a rational therapy Alfieri believes that in all cases a careful bacteriological examination of the lochia and the blood and a clinical diagnosis of the site and extension of the morbid process are essential. His conclusions are as follow:

The treatment of puerperal fever should include local therapy and general therapy.

Local therapy consists of methods of cleaning and disinfecting the genital parts without injuring their integrity and of surgical measures to remove the most deep-seated circumscribed foci when the infection has not as yet invaded the entire body.

From the point of view of treatment puerperal fever usually passes through three stages. In the first period the morbid lesion is circumscribed and limited to the mucosæ. In the second period the lesions are still limited to the genitalia or adjacent structures (pelvic tissues, adnexa, peritoneum) but have passed the mucous barriers. In the third period there is septicæmia and the local process is secondary to the general infection.

In the first period the treatment should be chiefly obstetrical. General medical treatment which should always be conservative and indicated as an adjunct to the local treatment and to increase the organic defense in case the infection should tend to spread. In the third period if the infection is treatment is useless and general treatment should be established without delay. In the second period when the insufficiency of obstetrical measures has been demonstrated surgical interference (hysterectomy, ligation and resection of venous trunks,

laparotomy and drainage, colpotomy, opening of pelvic phlegmons) may be considered.

The probability of effecting a cure diminishes as the disease advances. SALVADOR DE PALMA, M.D.

Thalhmer W. and Hogan B. M. Puerperal Sepsis (Bacteræmia) Caused by Bacillus Influenzæ. *Int J Obstet Gynecol* 9:3 343

A primipara aged 34 years was admitted to the hospital in the first stage of labor at 5:30 p.m. Labor and delivery were normal. The baby was born at 10:30 p.m. The position was L.O.A. A right lateral episiotomy was performed and low forceps used. The placenta was delivered ten minutes later by Schultze's method and the episiotomy repaired with four interrupted catgut sutures. Nitrous oxide oxygen anesthesia was employed. During labor complaint was made of pain in the gallbladder region. With the exception of respiratory infections and an appendectomy performed after an attack of influenza three years before this labor the patient's history was unimportant.

Forty-eight hours after delivery she experienced a chill lasting twenty minutes. An upward and downward temperature persisted for ten days and on the tenth day there were four chills and temperature of 105 degrees F. A soft apical systolic murmur was noted. Blood cultures showed fourteen colonies to each cubic centimeter. These were minute (about 1 mm in diameter), colorless and transparent and showed about the typical hemoglobinophilic with dark red accumulations of hemoglobin for a distance of from 1 to 3 mm from each colony. The colonies were made up of extremely small slender pleomorphic Gram-negative non-motile bacteria which could be cultivated only on blood agar (Bacillus influenzae). Two to four days later 500 c.c.m. of blood were transfused. In the next few days femoral phlebitis developed. Subsequently the patient had numerous chills but finally recovered and was discharged at the end of two and one-half months.

It is an extremely interesting observation that while the vaginal and cervical mænae held large numbers of various types of bacilli and cocci both Gram-positive and Gram-negative only a few colonies of staphylococcus aureus and streptococcus pyogenes developed in the culture. The recovery in this case with a positive bacillus influenzae blood culture indicates that the infection is of this organism and not due to the type of influenza bacillus which Cohen found so frequently fatal in cases of bacteræmia accompanied by meningitis in children.

EDWARD I. CROFT, M.D.

Paucot H. On the Value of Culture in Therapy in Puerperal Infections (Cultures in the treatment of puerperal infections). *Rev française de gynécologie* 14:1 93 33

Of the large number of cases of puerperal infection in the treatment of puerperal septicæmia, none has produced effects. JAMES V. RICE, M.D.

## MISCELLANEOUS

Bailey H. The Control of Midwives. *Am J Obst & Gynec* 923: 1-93

In New York in 1911 the Bellevue School for Midwives was established through the influence of Brannan. It is now the only institution in this country for the teaching of midwives. At first it received a great deal of criticism and opposition but in the last few years has been accorded the recognition it deserves. The City Health Board has refused to admit to practice any woman who is not a graduate of this school or a similar school abroad a standard which has had a definitely beneficial effect on the practice of midwifery in New York City. The number of midwives has been reduced one half only 1500 now being registered. The deliveries controlled by midwives have been reduced from one third to one fourth of the entire number. The handling of normal cases of labor by midwives who are properly trained has reduced the maternal mortality from puerperal and the number of stillbirths

and eye infections. Criminal abortion has also been greatly decreased and only a very small number of midwives have been charged with this or other misdemeanors.

The standard for admission to the training school should be high. Nurses should be permitted to take the course if they intend to practice maternity work in public health positions. The practical training should consist in attendance at 100 cases of confinement.

The midwife should never be permitted to take charge of primiparous women and should be required to present all cases for a prenatal examination in order that a proper diagnosis of pregnancy and labor may be made by a medical consultant. Vaginal and rectal examinations should be prohibited. All cases in which labor continues for twenty-four hours without delivery should be considered abnormal. Consultation with a private physician or a medical inspector should follow deliveries conducted by midwives.

EDWARD J. C. R. ELL M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Lat rjet A and Bertrand P Anatomical Re search upon the Innervation of the Capsul of the Adren l Gland Kidney and Upper Porti n of the Uret r (Recherches nat miques r l n nat n des c pule suprénal s de ) 18 1 dela p t esupé eu d l uretê c ) 13 1 19 3 15 452

The extrins c v serral nerve fibers do not form a true plexus but are quite independent of each other as they penetrate the capsule of the organ. This fact makes it possible to remove them without disturbing the intrinsic visceral supply.

The capsule of each adrenal gland is supplied by two distinct groups of nerve fibers which are extremely fragile and small but which never anastomose. Many of them present small ganglia along their course. These fibers are arranged in a posterior and an internal group. Those constituting the former arise from the terminal portion of the greater splanchnic nerve while those of the internal group arise from the celiac plexus. The authors suggest that the cortex and medulla of the gland may have a separate innervation and that it may be possible to destroy one group of fibers without injuring the others.

The visceral nerve supply to the kidney arises from the lesser and inferior splanchnics and from the celiac plexus. The fibers are arranged in an anterior and a posterior group which rarely anastomose. They are very distinct at the hilus of the kidney and closely applied to the walls of the arteries.

The nerve supply to the upper portion of the ureter consists of small branches from the fibers to the kidney. Therefore when the sympathetic nerve supply to the kidney is sectioned they must be removed from the walls of the arteries entering the renal hilus.

LOYAL E D VIS M D

Southam A H The Fixation of the Kidney  
Quart J Med 9 3 x 283

Factors predisposing to displacement of the kidney are the erect posture and certain types of body form as shown by the shape of the renal fossa. Mobile kidney occurs more frequently in females than in males because in the former the renal fossa are open or wider below than above while in the latter they are pear shaped and narrower below. The determining factor in many cases is a relaxed abdominal wall. This is more common in females than in males because of inferior muscular development, pregnancy and poorer muscle tone. The right kidney is more often displaced than the left because of the shape of the renal fossa and the pressure of the liver on the right side. The left kidney

is more securely supported by neighboring structures. The liability of the female to renal displacement begins at puberty.

Anatomical studies show that the kidney, suprarenal body and perirenal fat are completely enclosed in a single fascial sheath, the perirenal fascia which is firmly attached to the diaphragm, vertebrae and the transversalis fascia. The kidneys are held in position chiefly by the perirenal fascia, the renal pedicle and the intra-abdominal tension.

LOUIS NEUWEIT M D

Stewart M J and Lodge S D On Unilateral Fusion of Kidney and All Renal Malformations  
B J S 9 3 1 7

Fusion of the kidney occurs in two forms: the rather common horseshoe type and the rare crescent kidney of Gerard. In cases of the former type the kidneys are more or less normal in position but are united across the midline of the body by renal tissue or less commonly by a bridge of fibrous tissue. They may be thus joined by either pole but usually the fusion occurs at the lower poles. In the crescent type of kidney, the fusion is more intimate and there is more or less asymmetry.

Gerard classifies fused kidneys as follows:

1. The horseshoe kidney (1) fusion at the upper poles (2) fusion at the lower poles
2. The crescent kidney (1) the prevertebral fused kidney (2) the unilateral fused kidney and (3) the pelvic fused kidney.

In the authors series of 6500 autopsies there was only one case of unilateral fused kidney and no case of crescent kidney. Congenital absence of one kidney is fairly common; sixteen cases having been found in this series in association with other developmental anomalies.

The horseshoe kidneys found in the authors series were of the type characterized by fusion at the lower poles by a mass of connective tissue. The ages of the subjects ranged from 14 to 82 years. In the one case in which the condition was unilateral no other malformations were found and the condition was not responsible for the patient's death.

The incidence of congenital absence of one kidney is about the same as that of horseshoe kidney. It occurs more often on the left side than the right (3) and in males than in females (42). The weight of the single kidney is usually above normal but seldom reaches that of two healthy kidneys. In the authors group of cases of this type the incidence of renal disease was as high as six fifteen patients died of causes directly attributable to disease of the solitary kidney. The average age of the patients was somewhat less than that in the horseshoe kidney group.

Three cases of pelvic kidney were discovered. Two were of the usual type. In one the kidney was malformed and obtained its blood supply by a short renal artery leaving the aorta at or near its bifurcation. In two cases the renal condition was not associated with the curve of the aorta. In the third case the ureter was 3 in. in length and kinked and the patient a man 55 years of age died of ascending pyelonephritis following cystitis of unexplained origin. Folk cites a case of solitary pelvic kidney in a 19 year old girl which was removed because of pain in the tumor mass becoming especially severe at the menstrual periods. Death occurred eleven days.

The authors report the autopsy findings in the case of a man of 56 years who died of acute generalized peritonitis following colic stomach for annular carcinoma of the sigmoid. Metastases had been formed in the liver and in the abdominal and mediastinal lymph nodes. There was no renal tumor on the left side although the left adrenal was normally situated. The right kidney measured 16.5 by 7.5 by 4 cm. Attached closely to its lower inner portion was an accessory kidney measuring 8 by 3.5 cm. Both units had a hilum pelvis and ureter. Roentgenographic examination after injection with collargol showed two separate ureters, pelves and calyces systems. The upper half of the renal mass was the normally situated right kidney and the lower portion the transported left kidney. The right ureter was 28 cm. long and ran a practically normal course. The left ureter extended downward a short distance then crossed over toward across the right psoas muscle and beneath the right ureter crossed the midline just below the bifurcation of the aorta and then took a normal pelvic course to enter the bladder at the normal point. Its length was 26 cm.

The right renal artery left the aorta immediately above the level of the superior mesenteric and entered the hilum of the right kidney behind the pelvis. A second and much smaller artery arose from the left side of the aorta a short distance below the first and after a course of 7 cm. branched into four divisions and entered the substance of the original left kidney. A third artery of considerable size sprang from the aorta on the right side about 4.5 cm. from the bifurcation and entered the middle of the posterior surface of the renal mass. A fourth artery which was fairly large arose from the bifurcation of the aorta extended upward and backward and entered the hilum of the lower renal mass behind the pelvis. There were three renal veins one from the lower and two from the upper half. The orifices of the ureters and the plicae uretericae appeared normal.

The authors have collected from the literature the reports of twenty eight cases of unilateral fused kidney. In the most salient features these malformations are very much alike they differ chiefly in their blood supply and to some extent in their size and shape. In contradistinction to cases of congenital absence of one kidney in which multiple developments are common unilateral fused kidney is

rarely associated with other defects of the genito-urinary tract. The clinical importance of such cases must not be overlooked. Unless a pyelographic study is made the surgeon may discover at a late stage of nephrectomy that he is dealing with a developmental abnormality and even then he may assume the presence of nothing more unusual than a double ureter. C. D. HOLMES M.D.

Longcope W. T. An Estimate of the Information Derived from the Use of Tests for Renal Function. *Bost. M. & S. J.* 1923 cl. vi. 73.

The recognition of two types of nephritis—one associated with chloride retention and the other with urea retention—was an important contribution to urology. Nephritis is a general disease in which the injury to the kidney is more than a mere mechanical injury to the secreting structure. Efforts to correlate functional derangements with the pathological lesions found at autopsy have been unsuccessful but the utilization of these tests in the diagnosis of early chronic nephritis has proved of great value.

The phenolsulphonephthalein test of renal function is characterized by Longcope as familiar and very useful. Another renal test widely employed is the determination of the specific gravity and the sodium chloride and nitrogen content of specimens collected at intervals while the patient is on special diet. The microchemical methods of blood analysis have greatly increased our knowledge of renal function. Following the slightest damage to the kidney the sulphates accumulate rapidly in the blood. Creatinine being easily excreted is the last to accumulate. Uric acid is not easily excreted and may be the first of the nitrogenous products to accumulate. The phosphates are excreted in combination with ammonia and when they accumulate they lower the alkaline reserve and give rise to acidosis. A fourth method of testing renal function is the determination of the ratio between the concentration of urea in the blood and the rate of its excretion in the urine.

Of these four tests those that give the most reliable results are the phthalein excretion, the renal test meal and the concentration of the chemical constituents of the blood. In the last mentioned the most important determinations are the urea, non-protein nitrogen, uric acid, creatinine and carbon dioxide combining power of the blood. Function may be profoundly disturbed in conditions such as passive congestion due to cardiac failure but when the circulation is restored and the congestion relieved it again becomes normal.

In pernicious anemia and other severe anemias the function of the kidneys may be indefinitely impaired. In pneumonia an increase in the non-protein nitrogen and a decrease in the phthalein excretion have been noted. In certain types of intoxication profound changes may occur and simulate conditions found in uremia. Following transfusion in cases of pernicious anemia the presence



of albumin and casts in the urine and a rise in the non protein nitrogen creatinine and uric acid have been observed.

In acute Bright's disease the diagnosis can be made easily from the clinical picture and urinalysis. In acute hypertension nephritis the renal function tests may be of distinct value in the prognosis and in determining the progress from an acute to a chronic stage. The phthalein test is one of the most reliable in acute cases. In most of these the phthalein excretion is normal when it is greatly reduced the prognosis is unfavorable. The ability of the kidneys to concentrate the salts and waste products is determined best by means of the renal test meal. In nephritis an increase in inorganic phosphates in the blood and acidosis are usually noted only in advanced stages and an increase in the non protein nitrogen urea creatinine and phosphates in the blood indicates that the patient is dangerously near uraemia. The study of the blood chemistry in nephritis is most valuable in the prognosis and the treatment.

BL J MIV F ROLLER MD

#### Breed I M and Rendall J Some Observations on Results with Kidney Function Tests J N C I M d 93 0

After one hundred years of laboratory development in functional tests of the kidney it is still impossible to determine definitely the nature of the lesion or the degree of kidney efficiency.

Albumin and casts in the urine do not necessarily indicate a lesion or lowered function of the kidney since both may be found in cardiac disease. Neither is an increase in the nitrogenous elements in the blood a sufficient basis for a diagnosis of nephritis as this is often found in the severe acidosis of intestinal toxemia and in undrained prostatic cases.

In a case of poisoning due to bichloride of mercury the authors found 1.88 gm. of albumin in twenty-four hours of dialysis and daily output of 2000 c cm. 20 gm. of nitrogen and 18 gm. of sodium chloride while the blood showed 0 gm. of non protein nitrogen to 100 mgm. of urea 115 gm. of creatinine per 100 c cm. and a carbon dioxide volume of 38 per cent. When the patient was placed on a carbohydrate diet the values returned to normal in thirteen days.

Kidney heart and vascular disease are so closely associated that they may be considered different manifestations of the same condition. According to Riggert they link a common chain of which we know neither the beginning nor the end. Moskowitz tests the report on bears no relation to its origin or the intensity of kidney lesions and is not a second rate test of nephritis.

In renal laboratory tests it is possible to find a little substance in the blood which the physician has seen usually in the urine or which might have originated in the diseased kidney.

Urea tanum creatinine gives rise to gastral flatulence which is almost relieved by a mild massage every day and yet a high

creatinin content in the blood does not always produce toxic results.

The authors discuss the findings in 50 cases in which tests of renal function were made. Most of them were under observation for at least a month. In the cardio-arterio-renal group the degree of blood pressure did not seem to be an indication of the severity of the disease. One patient was rejected for the army because of chronic Bright's disease with hypertension constant albuminuria and a blood pressure of 220-140. After cholecystectomy for infection of the gall bladder the albuminuria disappeared and four years later he was still perfectly well and able to do his manual labor.

The authors conclude that no test for kidney function is to be relied upon alone and that the most valuable indications are variations in the blood chemistry and the specific gravity of the urine in relation to diet. High uric acid and sugar values are suggestive of cholelithiasis when the gall bladder is operated upon in such cases in the authors series these values decreased.

BL J MIV F ROLLER MD

#### Davis V C and McGill F C The Relation of the Bowel to Bacillus Coli Kidney Infections J C I d 923 233

This article is based on a study of the route taken by the colic bacillus in its passage from the bowel to the kidneys in cases of pyelitis. The experimental work reviewed and reported shows that intestinal organisms pass through the normal as well as the pathological bowel wall to the mesenteric glands. The injection of large numbers of actively growing colon bacilli into the gastrointestinal tract of the normal dog caused only a very moderate reaction in the urinary tract. In dogs with diarrhoea the reaction was more pronounced. In the authors' opinion the organisms reached the kidneys by way of the blood stream.

In mild constipation or diarrhoea in dogs there was no increase in the absorption of the organisms in the mesenteric glands and no urinary infection. Complete obstruction of the bowel or intestinal injury on the other hand caused a marked increase in mesenteric gland absorption and urinary infection in the case.

There was no evidence that organisms absorbed in the mesenteric glands reached the kidneys by the lymphatics. In the authors' opinion such infection would be possible only when the diseased bowel is apposed directly in contact with the peritoneum or during the kidney.

#### Vogel K Renal Anuria in (D) Nephrocytoma D J K Z I C I C A

A man aged 62 years had suffered from haematuria of moderate severity associated with vertigo, loss of hearing while standing on a ladder. To prevent himself from falling he leaned far over to the left bend backwards as

As well as ideic At this moment she experienced a severe pain in the left side of the abdomen and back which made it difficult for her to descend the ladder without falling. She was forced to lie down at once suffered from vertigo and ten minutes after the accident became unconscious for half an hour.

When the author first saw her an hour and a half after the accident her face and mucous membranes were pale her pulse was 132 hard and tense and her blood pressure 105 mm. On the left side of the abdomen near the median line and just beneath the costal arch an area was found which was painful on deep pressure. There was no tumor and no resistance. The pain on pressure extended to the back on the left side and was most severe at a point in the posterior axillary line. The urine was deep red and contained numerous red and white blood cells.

A diagnosis of acute renal calculus was made although the pain on examination was only moderate and the collapse which was a very prominent feature of the clinical picture was evidently due to some other weakening factor than the pain. The large amount of blood in the urine also spoke in favor of renal calculus.

With suitable treatment all symptoms disappeared and within fourteen days the roentgenographic cystoscopic and other findings were negative.

Fifty six days later the patient again consulted the author because of a sensation of tension and indefinite pain in the left side and the presence of something moving in the abdomen. Examination revealed in the left side between the rectus and the anterior axillary line a hard somewhat elastic almost immobile round tumor the size of a man's fist. When the patient lay on her side the tumor changed its position a little but did not move with respiration. It was not continuous with the spleen. Catheterization and roentgenological examination of the kidneys showed nothing pathological. During the next three weeks the tumor did not change in size. Since it appeared that the growth had its origin in the left kidney operation was advised. The patient refused surgical treatment.

Thirteen and one half weeks after the accident while walking the woman suddenly fainted. Consciousness was soon restored but the pulse was 140 and respiration was deep and difficult. The patient stated that she was not suffering severe pain but there was a feeling of great tension in the left side with slight radiation of pain downward. In spite of a desire to micturate she was unable to pass urine. The tumor in the left upper abdomen had not changed in size but while previously it was elastic it now felt doughy like edema. The entire left side around the tumor and toward the back was tender on pressure and showed slight edema of the skin. The distended bladder reached almost to the umbilicus and was found to contain 100 cc. of pur blood. There seemed to be a constant trickling of blood into the bladder from

above. Immediate operation was again recommended but was again refused. Death occurred a few hours later. Autopsy was not permitted. Just before death the bladder again filled and reached to the umbilicus.

In this case four months after an accident in which the left renal region had been squeezed and pulled a severe hemorrhage from the urinary passages ended fatally in a few hours. This hemorrhage was into the tissues surrounding the kidney and only in part into the urinary passages. In view of the cardiac and vascular findings the tumor must have been an aneurism of the renal vessels from rupture of the sclerosed arteries or one of their branches. The first hemorrhage took place immediately after the injury to the damaged arterial wall. From the perforation in the wall the aneurism formed and grew up to the point where it was ruptured by a slight strain.

Operation on the aneurism at the time the tumor was discovered could have restored the patient to complete health.

In its origin and course this case is similar to several of the twenty nine cases of renal aneurism recorded in the literature to date. Such aneurisms may be caused by trauma or by disease.

Of the twenty nine cases recorded only five were diagnosed with certainty during life and only seven were operated upon. Of the seven patients treated surgically only one died while of the eighteen others on whom operation was not performed all succumbed. As a rule the kidney also was removed as its nutrient artery was the site of the disease.

The field of operation is best approached by the extraperitoneal abdominal incision recommended by Hofmann for the removal of large tumors of the retroperitoneum.

CRUICK (Z)

Williamson C S. Some Observations on the Length of Survival and Function of Homogenous Kidney Transplants. Preliminary Report J. U. 1923 7.

Williamson placed autogenous and homogenous kidney transplants in the necks of dogs anastomosing the renal vein with the external jugular vein and the renal artery with the common carotid and bringing the ureter out through a stab wound. The technique employed in the blood vessel suturing was essentially that of Carrel and Guthrie.

When one kidney was transplanted to the neck of an animal and a few days later the other kidney was removed the transplanted kidney maintained life for months. The phenol sulphophthalein excretion was somewhat diminished and the blood urea varied between 30 and 40 mgm. for each 100 cc. After several months the kidney became infected and dilated this increasing until the animal died of uremia. In spite of trauma destruction of nerve control and the abnormal location of the organ life was maintained for weeks with apparently nearly normal function.

Following homogenous transplantation of a kidney the results were at first similar to those following autotransplantation but the transplants functioned for only about four days the time varying from twenty-four hours to six or seven days. This failure of homogenous transplants may be due to some biological asymmetry—possibly different reactions in the blood or plasma—similar to that accounting for the different blood groupings in man.

When a kidney was transplanted to the neck of a dog having two normal kidneys the nitrogenous elements of the blood at times rapidly increased above the normal limit and the urea, urea nitrogen and creatinin eliminated by the transplanted kidney were almost equal to the combined output of both normal kidneys. ALPERT J. Sci. 22, 1110.

Richer. Renal Surgery by the Sacrolumbar Approach. (Chirurgie rénale par la ligne sacro-lombaire.) J. d. r. m. d. 1. 41. 93317.

The author makes a vertical incision from the lateral to the ala of the ilium and splits and retracts the two superficial aponeurotic layers, the transversalis and serratus. On the deep plane the muscle then lies over the kidney. Beneath the lumbar muscle the ilio-inguinal nerve passes off to the left across the field. This is retracted and the peritoneal fat is entered. The pelvis of the kidney alone is sought. On the right side it is found at the level of the second lumbar vertebra and on the left side a little higher. Through the incision described the renal artery 6 to 7 cm. below the skin may be felt.

This approach is indicated for the removal of mill or atrophic kidneys, nephroctomy, nephropexy, pyelotomy, plasticity on the pyelo-ureteral area, ligation of the renal pedicle, especially in certain dangerous nephroctomies, ligation of the renal artery or nerves, high ureter lithotomy, bulle extirpation, ureterotomy, then catheterization must be avoided. Impotency, ureterotomy and surgery of the suprarenal capsule. KELLING S. 20, 1110.

Epstein F. Urinary Incontinence in the Female Due to Double Ureter With an Abnormal Opening. (L'urine duine chez la femme par une double embouchure normale.) J. k. d. mal. d. s. et d. org. n. g. 11. 11. 93345.

A distinction is made between urinary incontinence of the day or night type and complete incontinence at all times. Essential incontinence is usually nocturnal rarely diurnal.

In some cases of sphincter insufficiency the upright position permits the escape of urine in the daytime. Another form is partial incontinence in which there are periods of normal micturition and no leakage. In the case reported the symptoms were of this type. In cases in which there is an abnormal ureteral opening just outside of the vesical sphincter or at the level of the meatus or at the vulvar level in the lower portion of the vagina the escape of urine is to be expected. In some cases there may be three ureters two of which are normal and open

into the bladder. The third connects with the kidney opening at one of the points mentioned. In other cases there may be two ureters, one opening into the bladder and the other at an abnormal point. Cases of the latter class are easily diagnosed as cystoscopy shows only one ureteral orifice opening into the bladder.

Including the author's case only twenty-six instances of urinary incontinence from a supplementary ureter opening abnormally have been found in the literature. A table of them is given. Most of the subjects were very young when the condition was noticed. Others were nearly 50 years of age. In most cases the incontinence was partial. The urine may escape drop by drop or by rhythmic ejaculations. Examination must be made carefully with special attention to the urinary meatus, the vulva and the anterior vaginal wall. An opening in the urethra may be found with the urethroscope. Instead of a simple orifice the normal opening may be several slits. On account of the difficulty of catheterizing the abnormal ureter its orifice is observed. A cyst or dilatation above the opening may have as an exit a very small orifice. A review of the reported cases shows that the abnormal opening corresponded to the right kidney in nine cases and the left kidney in ten. In two cases bilateral double ureters were found. These determinations have been made at autopsy and by the catheter or sound and recently by means of pyelography. In the author's case, which lacked all symptoms, pyelography on each side was done. As a comparison of the plates showed that the left pelvic shadow was incomplete the conclusion was drawn that the supplementary ureter was on the left.

Surgeon has chosen the upper approach to implant the supplementary ureter into the bladder by an intra- or an extraperitoneal method. However the position of the kidney corresponding to the supplementary ureter is usually valuable as a preparation for the implantation of the ureter. Total nephrectomy is too reliable a sign of the ureter usually fails. The ideal operation is partial nephrectomy. This has been done successfully in three cases.

The case reported was that of a woman 19 years old who was in good health except for intermittent urinary incontinence. Examination showed that the urine escaped from the urethra at the rate of about twenty drops at a time every ten to twenty seconds. The bladder was found to be continent and cystoscopy showed that it was normal and had two normal ureteral openings. The urethroscope failed to reveal the abnormal opening. Eventually a narrow forceps just back of the urethra was found to be the point of exit and its channel was explored with a fine bougie.

At operation through a lumbar approach the kidney was exposed and a supplementary ureter as large as a thumb was found. The normal ureter had been marked by passing a sound into it. A partial nephrectomy was done through a furrow

marking the division in the kidney and the ureter was double ligated before it was cut off.

Examination of the specimen showed that 15 cm of the abnormal ureter had been removed. A little urine leaked through the incision for several weeks. At the end of three weeks drainage of the remaining portion of the dilated abnormal ureter through the vagina was necessary because of slight infection. A cure resulted.

KELOGG SPEED MD

**Romitti C** A Report of Five Cases of Double Ureters Complicated by Pyelonephritis (Sopr a que c i pe ti d duplicatà ur i rai I lonefite) *ick i l di h* 1923 71 33

The author discusses at length the symptoms and finding in five cases of pyelonephritis and double ureters in which nephrectomy was done. In only one case was the duplication complete in the other the ureters fused with one another at various levels before they entered the bladder. Romitti stresses the point that these anomalies are not necessarily pathologic as they often remain undiscovered until a cystoscopic and X-ray examination is made or an operation is performed for some other urinary condition.

JAMES V. RICCI MD

**Reynolds I R** The Treatment of the Ureter When Nephrectomy is Done for Tuberculosis of the Kidney *Cif a Stat J M* 923 369

The combined operation Reynolds recommends may be begun either upon the kidney or the ureter depending upon the requirements of the particular case. If the kidney is first attacked it is exposed through the usual blue incision thoroughly freed of its attachments down to the brim of the pelvis and dropped with the ureter into the wound which is then closed either by ligatures or by through and through sutures.

In the next step the patient is placed in the dorsal position and through a lateral rectus incision the peritoneum is exposed and reflected to reach the midline until the ureter comes into view. The ureter is then stripped down to the bladder where it is ligated and divided and its ends are cauterized with phenol. It is then easy to free it up toward the kidney until it can be delivered with the kidney through the lower wound. The wound is closed without drainage or at the most with a soft rubber drain.

Sometimes it will be desirable to reverse the procedure by first doing the ureteral dissection in front closing the wound and then proceeding with the kidney operation eventually bringing the kidney and ureter out through the loin wound. This is preferable when the kidney contains pus and is apt to be ruptured by any unusual manipulation or when the mass is so large that it cannot be easily delivered through the anterior wound. At the conclusion of such a combined uretero-nephrectomy there are of course two wounds but between them is a broad plane of abdominal wall which acts as a splendid support. The author's conclusions are:

1 The combined operation adds but little if any to the surgical risk of nephrectomy or ureterectomy.

2 The chances of the formation of a slowly healing sinus or a fistula are lessened.

3 If the foregoing observations prove well founded by the experience of others it is probable that the combined operation should be done more frequently especially in cases of renal tuberculosis.

LOUIS CROSS MD

**Hyman A** Empyema of the Ureteral Stumps Following Incomplete Ureterectomy *A Srg* 93 1 387

There are few reports on the fate of the distal ureter after nephrectomy. The lower inch or two of the vesical end of the ureter being the most difficult part to resect is frequently left behind. As the stump remaining may cause considerable trouble and a persistent pyuria it is important in performing a primary ureterectomy for pyo-ureter to excise the ureter down to its entrance into the bladder.

THOMAS F. FINEGAN MD

## BLADDER URETHRA AND PENIS

**Joly J S** The Operative Treatment of Vesical Diverticula *La c t* 1923 c 445

In the operative treatment of vesical diverticula preliminary cystostomy is dangerous because the diverticular orifice becomes closed when the bladder contracts around the cystostomy tube and the diverticulum then suppurates because no amount of vesical irrigation will reach it. Therefore a preliminary cystostomy should be done only when the kidneys are so severely damaged that the patient cannot stand a primary excision. When in such a case the diverticulum is grossly infected the bladder should be opened and two small tubes should be placed in the diverticulum and a large tube in the bladder. The diverticulum may then be successfully irrigated.

Diverticula may be excised from within or from without the bladder or by splitting the bladder wall. An excision from without the bladder is suited for diverticula situated high.

The intra-vesical operation is done by encircling the diverticular orifice by an incision through the entire bladder wall and removing the diverticulum by blunt dissection. This is suitable only for small diverticula.

In some cases the sac may be invaginated partly from within and partly from without. Young has invaginated diverticula by suction. When the sac is large and thin the method of combined invagination and inversion is particularly effective but when the sac is low down on the posterior wall of the bladder where the walls are thick and inelastic and when there is marked pericystitis this method is less successful.

Vesical diverticula have been frequently diagnosed as prostatic hypertrophy. When these conditions occur together they should be removed at one operation if this is possible without too great risk.



in 13 per cent of the cases of papilloma malignum and in 23 per cent of those of non-infiltrating papillomata. By a lasting cure is meant freedom from recurrence for from three to thirteen years. However attention is called to the fact that in cases of benign papilloma freedom from recurrence for many years is not unusual. Of eight patients with papillary cancers only one remained free from recurrence at the end of eight years. Of ten with carcinoma solidum only six survived the operation and in five a recurrence developed after from one and a half to three and a half months. The results of operation were therefore very poor. Total removal of the bladder was not done.

In inoperable cases palliative operations should be restricted as far as possible. Although electrocoagulation has now been in use for more than ten years and there are numerous enthusiastic reports recommending the intravesical operation comparatively little evidence of definite and lasting success has been offered. The author believes however that in carefully chosen cases the results may be better than those of open operation.

ROEDERLUS (Z)

Young H H and Scott W W The Results Obtained by Various Methods in the Treatment of Tumors of the Bladder. *York M J & Med R* 93 3 6

A review of the 380 cases made by the authors show that about 80 per cent of bladder tumors occur between the fortieth and sixty-ninth years of age the incidence in these three decades being about equal. A benign papilloma in a boy of 15 years and a carcinoma in a man of 26 years were encountered but usually the malignant tumors occur somewhat later than the benign.

Both papillomata and carcinomata are most frequent in the region of the trigone and ureteral orifices the adjacent lateral walls of the bladder and the vesical neck. The anterior wall is less frequently involved and the vertex and upper posterior wall is frequently attacked.

Resection is most easily done in the vertex and the anterior upper lateral and posterior walls and excellent results may be expected from radical removal of a wide margin of bladder wall. Good results may be obtained also from resection at the base of the bladder and in the region of the ureters. When the vesical neck and prostate are involved deep cauterization is far more effective than excision.

In cases of benign papilloma fulguration is usually the method of choice but when the tumor is large radium is of great assistance in causing its rapid disappearance. Because of the potential malignancy of all vesical papillomata radium should generally be applied if possible. In cases of malignant papillomata radium applied with an open electric cystoscope and held firmly in position with a clamp fastens it to the table is of first value and gives the best results. Here again the combined use of fulguration and radium is advisable. The same treat-

ment is sometimes completely effective in papillary carcinoma four small and two large tumors of this type and one small infiltrating cancer were apparently cured by it.

When the tumor is definitely malignant or very extensive and particularly when it is infiltrating it should be attacked suprapubically. Care must be taken not to touch it or break off any papillary processes and alcohol or resorcin should be applied to destroy any cells that may have dropped into the bladder or wound.

If thorough resection with a wide area of healthy bladder wall is possible it should be done.

The position of radium implantation is still undecided. In a few cases it has given remarkable results but it was always associated with deep and wide cauterization. As a whole however the gloomy outlook which was held as to the curability of bladder tumors has passed. Fulguration radium electrocoagulation and careful radical resection have transformed the situation so that today about 93 per cent of the benign and 75 per cent of the malignant papillomata about 50 per cent of the papillary carcinomata and about 25 per cent of the infiltrating carcinomata are probably curable by one or more of these methods. OSCAR E. NADEAU M.D.

Judd A M Urinary Symptoms in Women Due to Urethral Pathology Only. *Am J Obst & Gyn* 19 3 1 3 8

The author calls attention to the importance of recognizing pathological conditions of the female urethra especially chronic infiltrations and infections of the urethral glands. He has seen many cases in which the infection was at first supposed to be higher up in the urinary tract and the urethra was recognized as the source of the trouble only after the absence of higher infection has been demonstrated by cystoscopy and urethral catheterization.

Gonorrhoea of the female urethra should be treated with as much care and by the same methods as gonorrhoea of the male urethra. In Judd's cases irrigations of acriflavine 1:6000 to 1:4000 are given with a special irrigation tip and with the reservoir at a height sufficient to overcome the cut-off muscle. Later applications are made to the inflamed areas of the urethra through the endoscope.

HENRY L. SANFORD M.D.

## GENITAL ORGANS

Randall A The Morbidity That Follows Prostatectomy. *Ill M J* 93 11 8 7

Randall states that although the mortality rate from prostatectomy has been reduced to about 10 per cent in another 10 per cent of cases there is only a partial return of function following the operation and these cases also must be classed as surgical failures.

In one of the two types of prostatic hypertrophy the gradually dilates the internal sphincter. The surgical indication here is to remove the growth



excreted appears in fifteen minutes. Up to fifteen minutes the secretion increases rapidly. In the next ten minutes it decreases as quickly and then gradually disappears.

With this method a rough estimate of the renal function is obtained. Long delayed and scanty secretion points to definite renal affections.

HAGEMANN (Z)

O'Conor V. J. Further Observations on the Blood Pressure in Cases of Urinary Obstruction. *J Urol* 923 x 135

The points brought out in this article are summarized as follows:

1. Complete drainage of the bladder in cases of urinary retention is attended by a marked fall in the systolic blood pressure during the first forty-eight hours. During this period the renal function is diminished as shown by the phenolsulphonephthalein test and the quantitative determination of the urea in the blood. If the retained urine is gradually evacuated the decrease in the pulse pressure is less marked and the renal function is only slightly diminished.

Before the institution of permanent drainage all patients in a pre-uræmic or dehydrated condition should be amply supplied with fluid. This can be quickly and safely accomplished by the intravenous injection of glucose solution.

3. If satisfactory drainage of the bladder is continued the blood pressure is gradually maintained at a definite non-fluctuating level. During this period the adequacy of the renal function and the general condition indicate that the patient is in the best possible state for operation.

4. Patients prepared for operation by waiting until the fixed blood pressure level has been established show a very slight postoperative decrease in the blood pressure, especially when glucose solution

is given intravenously both before and after operation.

5. In the majority of patients who suffered from long-standing urinary retention and originally presented themselves with hypertension the reduction in the blood pressure resulting from treatment has so far been permanent. The pressure is high only in those with cardiac disease.

6. Obstruction in the course of the urinary tract must be considered in many instances as a cause *per se* of high blood pressure. This may be true even when the amount of residual urine is small.

GILBERT J. THOMAS M.D.

Rogers A. R. Some Conclusions Drawn From the Observation of 4000 Cases of Gonorrhœa Treated in a Public Clinic. *Clinical Studies* 923 x 425

Rogers maintains that a person with acute gonorrhœa should live and work where drinking water is easily obtainable at all times day and night. He should never pass a drinking place without taking a glass of water and should never take a glass of water without taking three. If he rises to urinate in the night he should drink copiously each time. The purpose of this forcing of fluid is to wash out the inflamed canal.

Protargol as a hand injection and permanganate of potassium as an irrigation accomplish more in the way of local medication than any or all other drugs the author has tried.

Many if not most cases of so-called chronic prostatitis and seminal vesiculitis which are of gonorrhœal origin are not gonorrhœa and should not be treated as such.

The use of sound to clear up a chronic discharge as recommended by many authorities is of no value unless there is a urethral stricture in front of an infective area.

LOUIS GROSS M.D.



# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS ETC

Causes of Tuberculous of the Shaft of the Long Bone  
 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

The extremely long shaft of the femur is the most common site of tuberculous infection. It is usually found in the middle of the shaft, and is often associated with a large abscess.

Causes of tuberculous of the tuberculous of the shaft of the femur are: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

In the following cases, the patient is a male, aged 25, who has been suffering from tuberculous of the shaft of the femur for several years. He has been treated with various remedies, but has not improved.

In the following cases, the patient is a female, aged 35, who has been suffering from tuberculous of the shaft of the femur for several years. She has been treated with various remedies, but has not improved.

Causes of tuberculous of the shaft of the femur are: 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

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the side of the arthritis and remain fixed in that position. Murphy keeps the wooden bite between the teeth throughout the acute stage so that after ankylosis there will be sufficient separation for eating and for cleansing of the mouth.

Burns may be followed by the same deformities as arthritis; therefore the same precautions should be taken and the same splints employed for their prevention.

In the opinion of the writer, Volkmann's ischæmic contracture follows the too tight application of a coaptation splint, a plaster cast or Buck's extension. No operation yet devised treats this condition successfully.

RUDOLPH S. REICH, M.D.

**Berard and Dunet. Tuberculous Hygroma of the Subdeltoid Bursa.** (*Hygroma tuberculeux de la bourse sous-deltôïde*). *Rev. de Chir. Par.* 1923, 31, 194.

Tuberculous hygroma of the subdeltoid bursa is very rare. The authors review the few cases reported in the literature since 1903. Mornac collected fourteen cases in his series published in 1899, but to date fewer than thirty are on record.

The author's case was that of a woman, 39 years old, who had had a swelling of the left shoulder and pain on movement of the left arm for a year. The swelling was on the anterior surface of the shoulder and about the size of a large orange. The skin was movable over it and several dilated veins were seen. On the posterior side the limits of the swelling were not clearly outlined. The shoulder movements were normal. The X-ray showed no bone changes.

At operation the bursa was punctured and about a pint of clear sticky liquid was evacuated. The deltoid fiber was carefully separated and the cyst wall moved. A cure resulted. The wall of the bursa was 4 mm. thick and its lining was swollen and thickened by fibrinous masses. Histological examination showed the tumor to be a tuberculous hygroma.

Frequently tuberculous bursæ contain rice bodies. Some of them show a colored fungus-like growth in a clear gelatinous fluid. Tubercle formation is rare. During the development of the hygroma, which is slow, the fluid becomes atrophic. The best treatment is surgical removal of the sac wall.

KELLOGG S. EDD, M.D.

**Jeanneret M. Luetic Spondylitis** (*Spondylitis luetic*). *Chir. H. A. H.* 1923, 63, 8.

Spondylitis of the spine especially in its mildest form is more common than has been generally believed and must be kept in mind on account of the great variety of its sequelæ. The author reports three cases observed during one year. Since Zittel collected eighty-eight cases from the German literature in 1911, few cases have been published in Germany, but a great number have been reported in America and France.

Very often other bones are diseased in addition to the vertebrae. Frequently the differential diagnosis between tuberculous and luetic spondylitis cannot

be made without a Wassermann test and an X-ray examination. The success of specific treatment is striking.

TROME (Z).

**Hohlbaum J. The Bursa Suprapatellaris and Its Relation to the Knee Joint.** (*Die Bursa suprapatellaris und ihre Beziehung zum Kniegelenk*). *B. f. kl. Chir.* 1923, 48, 1.

The author studied 252 knee joints from subjects of different ages to determine the reasons for the difference in the location and extent of the perforated opening from the suprapatellar bursa. Taking into consideration the mechanical influences as well as the mechanical cause for the genesis of the suprapatellar bursa, he concludes that the perforation into the knee joint usually occurs at the end of the fifth fetal month. In the development of the bursa as of congenital bursæ in general, mechanical influences are paramount. The cause of the difference in shape and extent of the perforation from the suprapatellar bursa into the knee joint is to be found in differences in the mechanics of the joint and the location of the quadriceps tendon with respect to the condyles. Primary disposition and intra-uterine influences are other factors.

CREUTE (Z).

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

**Sorrel E. A Report on 166 Operations for Rachitic Deformities.** (*À propos de 166 interventions pour déformations rachitiques*). *B. H. t. m. S. d. Chir.* 1923, 9, 31, 439.

The operations reviewed included seventy-seven MacEwen supracondylar transverse osteotomies, eight cuneiform osteotomies and one Ogston transcondylar vertical osteotomy for genu valgum. For the correction of rachitic deformities of the tibia in children, forty-four cuneiform osteotomies and eight moulding osteotomies were done. Four cases of genu varum and two cases of deformities of the upper limbs were observed. There was no delayed union or suppuration. Seventy-six of the 166 operations were done with the circular saw.

Onalredunne believes that callus forms more rapidly after cutting with the circular saw than after cutting with the saw that in rachitic children simple osteotomy is better than cuneiform osteotomy because the bony gap is readily filled, that crossing the epiphyseal line in children is probably injurious to later growth and that the function of the articular cartilage is independent of the epiphysis should be studied.

Cadenat considers cuneiform osteotomy preferable to linear osteotomy when the angle of deviation is great and especially in the cases of adults because after maturity the bones are less malleable and osteogenesis is less active.

The author operates only upon rachitic deformities which interfere with normal function or are seriously disfiguring. He delays operation until the X-ray shows that the rachitis has been checked.

In the use of the electric saw the bone is denuded by incising the periosteum and sliding a Farabee retractor between the periosteum and the bone. The retractor protects the soft parts from the saw. Accurate calculation of the size of the bony wedge to be used to correct the deformity is important. More perfect reduction is apt to result if small edges are raised until the proper quantity has been removed.

Callot maintains the plane surfaces in intimate contact by fixing them with reindeer or kangaroo tendon or chromic catgut. If a roentgenogram is made with the limb in the apparently correct position and another roentgenogram made 90 degrees to this the maximum angle of deviation is shown. The bone may be cut and the final inclination of the leg made in one direction as indicated by the maximum angle of deviation.

Although Ogston's operation (vertical transcondylar osteotomy) is intra-articular and requires rigorous asepsis and although the part played by the articular cartilage is unsettled the author employs it in the rare cases in which it is indicated even those of patients under 15 years of age because of its excellent results.

The moulding operation after transverse osteotomy combined with the formation of a cup-shaped or transverse groove in one bone and into which the other bone is embedded prevents slipping and overriding of the fragments.

WALTER C. BIRKETT, M.D.

Beaumont, Well and Wilman, Netter (on rheumatoid Arthritis and Arthritis) (Abstracts) (No. 10) (1933) Bull. J. Mem. S. Med. d. Hosp. d. P. 10 3 3 x 50

A case of acute gonorrheal arthritis involving the left knee is reported. Cultures from the urethra and from fluid in the joint cavity showed typical gonococci. The patient was treated with various chemical substances including accines and saw with relief. Arthrotomy followed by lavage of the joint cavity with ether closure of the wound without drainage immobilization and later gradual physiotherapeutic measures resulted in a rapid and complete cure.

LOYAL L. DAVIS, M.D.

Willems, C. The Treatment of Purulent Arthritis by Arthrotomy and Mobilization. The Cause of Failure (Translated from the Dutch) (Abstracts) (No. 10) (1933) Bull. J. Mem. S. Med. d. Hosp. d. P. 10 3 3 x 50

In the treatment of purulent arthritis of the knees long bilateral arthrotomy incisions extending from the top of the space under the quadriceps to the lower level of the joint are essential. While in simple cases the knee might be drained through a small arthrotomy incision by active movements the angles of the wound tend to cicatrize after a few days and drainage then becomes insufficient. However in the case of aseptic arthritis with a purulent discharge

containing polynuclear cells but no bacteria and without a general reaction healing usually occurs following repeated puncture.

Active mobilization should be begun immediately continued and pushed to the maximum excursion of movement. In order to prevent muscular atrophy which makes movement impossible or insufficient the patient must not be allowed to remain inactive. The purpose of the movement is to empty the joint by expression. In the knee there is a space between the articular ends of the bones and another under the patella. During passive extension and flexion the articular surfaces glide over one another and the joint contents pass from one space to the other as well as to and the outlet. With active movement the synovial surfaces are kept intimately in contact by muscular contraction and the contents cannot be reflected from one part of the articulation to another but go toward the outlet. As muscular contraction does not relax during active flexion and extension there is a certain fixation of the joint which prevents pain. During passive mobilization pain is caused by deviation of the axis of movement. As passive mobilization movements are contraindicated in immobilization perfect drainage is impossible. Muscular atrophy rapidly appears as the joint becomes insecure and the lesser movements extremely painful. In the case of a joint that has already been treated by other methods active mobilization should not be attempted.

If in the course of active mobilization the patient suddenly refuses to make further movements because of pain an examination should be made for pus retention. Very little pus may be present. If retention is found, the undischarged pus should be trimmed; the partially disinfected incision should be made more frequent and complete treatment made. The author has never resorted to the knee once employing mobilization.

Patients with these lesions are greatly relieved and rapidly and promptly contract their flexor and extensor muscles. Others are exhausted in vain attempts to contract the leg muscles and must be educated patiently and watched constantly until the necessary contraction can be made. However even if the patient cannot mobilize the joint sufficiently in spite of all attempts the slight motion obtained will lead to healing by absorption and resorption. It is a good idea when active mobilization cannot be completed it is preferable to do nothing but to introduce drainage as a retreat rather than to use passive movement.

The nature of the mobilization movements is not to the indication of the method and influence is only the duration of the suppuration. In diplococcus infection recovery is more rapid than in infections due to other pyogenic bacteria. Staphylococcus and streptococcus infection persists for a longer time.

The method described is applicable to purulent arthritis with the exception of placing the patient in an extensive apparatus and continuous mobilization.

the author has obtained perfect healing in cases complicated by fracture of the patella and in a considerable number of cases of other fractures with at times severe displacement

In cases with marked effusion repeated puncture and mobilization effect complete functional recovery Bier's hyperemia is a useful adjunct

In the plastic type of arthritis with peri articular infiltration and rapid ankylosis the best treatment is arthrotomy cleansing of the joint closure without drainage and active mobilization

In true suppurative arthritis the treatment is a long bilateral arthrotomy left open and immediate continuous active mobilization pushed to the limit whatever the infecting organism In all cases an equally complete healing results The method carried out properly has no contra indications and even in unfavorable cases gives results which far surpass those of older methods

The author does not favor cleansing with ether and never makes injections into suppurating joints

WALTER C BUE ET AL

Regard G I The Treatment of Localized Paralysis by the Grafting of Dead Tendons (Traité des paralysies localisées par la greffe de tendons) Rev med d S s om 93 xl 364

From a number of animal experiments the author reaches the following conclusion

1 Dead tendon grafts in healthy tissues become revived whatever their length

2 The revival of dead tendon grafts is always rapid in the two ends where they are in contact with normal tendon tissue In connective tissue revival by the lateral route is always sufficient and is complete at the end of two or three months

3 Very long grafts may give perfect results but a continuous bed must be created for the tendon

4 The best bed is made in direct contact with the aponeuroses with the aid of the aponeuroses and the connective tissue covering them

5 Grafts of dead tendon like all grafts must function therefore mobilization should be instituted from the very first

6 The graft of dead tendon permits the use of distant muscles the action of which is synergic with that of the paralyzed muscles

7 Grafting of dead tendon may be substituted for prosthetic appliances

8 This method is preferable to tendon transplantations which do not allow the correct employment of synergic muscles

W A BRENNAN

Frae J Th Paralysis of Pott's Disease and an Operation for Its Relief Ed 1 2k 11 J 1923 n xx 385

The development of paralysis in association with tuberculous disease of the spine is a most distressing complication The complication arrests the usual course of recovery it necessitates prolongation of the already burdensome recumbency and in spite

of treatment it may progress to the stage of irrecoverable degeneration of the spinal cord and a permanent flaccid paralysis

Experimentally and clinically it has been demonstrated that simple angulation of the spinal cord is not the primary cause of the paralysis The influence which induces the change is a localized pressure exerted upon the cord from without and is most frequent in the upper dorsal spine where the lumen of the vertebral canal is narrowest

In Kohler's opinion one of the most potent factors in producing pressure changes is the oedema characteristic of tuberculous lesions The result of the meningeal changes is that the spinal cord suffers a slow compression These various changes are consistently most marked in the spinal level just above the zone of compression It has been the author's practice to give simple conservative treatment—absolute rest in the horizontal position combined with moderate hyperextension and if necessary counter extension to the head and lower extremities for a period of twelve months If this fails he recommends laminotomy

With the patient in a prone position a vertical curved incision is made in the long axis of the spine over the area of the kyphosis The longitudinal groups of muscles are separated from each side of the spine so as to expose the posterior surface of the laminae for the extent of two laminae above and two below the site of the vertebral disease With a specially designed laminotomy forceps the laminae are divided close to their attachments to the transverse processes Immediately above the highest point of division and immediately below the lowest point the interspinous ligaments are severed Nothing is removed but the laminar division permits a slight backward displacement of the segments The wound is closed without drainage

Immediately after the operation the patient is placed in the prone position After the wound has healed he is placed in the dorsal position upon a curved Whitman frame with an oblong ring of felt under the site of operation This position is maintained for a period of six months

Improvement is apparent within a few days after the operation Voluntary movement gradually returns and in a surprisingly short time the limbs are capable of a normal range of motion If care is exercised in the postoperative recumbency the recovery is complete and permanent

The author reports the cases of four children from 10 to 15 years of age in which the operation was successful In one case however a temporary relapse occurred because of inadequate postoperative care

R C LOVERGAIN MD

David S D Experimental Incisions of the Cadaver for Drainage of the Ankle Joint J B 1 & Jo 1 S 2 1913 v 480

In research work upon cadavers glycerine was used for injection of the joint and methylene blue for a coloring substance

Through the antero-external incision on the largest amount of injected material was evacuated with the foot in plantar flexion. Some of the fluid remained in the posterior compartment.

An antero-internal incision gives less room and is apt to injure vital structures.

The anterior median incision crosses the neck of the astragalus and the extensor tendons of the toes and foot. With the foot plantar flexed the injected fluid was found in the lateral unsupported portions of the anterior ligament. This route appears dangerous.

In the postero-internal incision many important structures are endangered.

The postero-external incision is reliable and safe. Access was ample and easy. Every drop of fluid was evacuated with the foot dorsiflexed. The incision is made in the postero-external aspect of the joint 1.5 cm medial to the tendo achillis, beginning 5 cm above the external malleolus and extending down to the os calcis following the anterior border for 1.5 cm.

JOHN MITCHELL M.D.

## FRACTURES AND DISLOCATIONS

Rocher H. L. Four Cases of Fracture of the External Condyle of the Humerus: Reposition or Removal? (A preliminary report on 1 fracture due to direct trauma). *Rev. d'Hyg. et de Médec. Sociale* 1933, 22, 3.

In three of the cases reported the condyle was rephased. In the fourth which came for treatment late the displaced condyle was removed. From statistics Roche concludes that supracondylar fractures constitute 44 per cent and external condyle fractures 33 per cent of fractures of the lower end of the humerus in children. The use of usually indirect violence tearing of the bone by the external capsular ligament force transmitted by the head of the radius or force exerted on the condyle by the olecranon when the forearm is hyperextended.

Three types of the fracture are distinguished: true fracture epiphyseal separation and fracture of the lower end of the humerus involving more than the corallum.

The first type is the most important from the surgical viewpoint. The fracture plane is oblique downwards and inwards beginning at the edge of the humerus and terminating in the trochlear fossa. The fragment is displaced downwards and inwards. It may come to lie in front of the head of the humerus. Binding it with the lateral ligament may sometimes prevent itself.

True epiphyseal separation is characterized by separation through the tibial plate usually without much displacement. In many fractures involving the condyle the fragment is displaced downwards and inwards and is mobile.

In children reduction should be made to effect reposition with the patient under anesthesia with the use of the fluoroscope. When the fragment is widely

displaced and rotated and the soft parts are severely damaged and ectymotic operation will be done. This permits easy and sure reposition without risk of ankylosis.

After manipulation had failed in the author's first two cases he performed an open operation five and eight days later. In the third case in which manipulation was not attempted operation was done on the eighth day after injury. The results were obtained. In the fourth case which was a month old the fragment was removed but Kocher's ligamentous retention held this is possible.

The condyle exposed by a lateral incision its periosteal attachments being preserved. After freshening of the fracture surfaces the bone is replaced.

Rocher prefers not to use internal splints as they are pegs relying on external splintage. In the first two cases the elbow was immobilized in extension and in the third case in flexion of 75 degrees. The immobilization was continued for ten days.

Removal of the fragment leaves a movable stable joint but would be reserved for all cases.

KELL, C. SPEER, M.D.

Speed K. Compression Fracture of the Dorsolumbar Vertebrae: Pathology and Treatment. *S. J. C. A. Am.* 1933, 1, 53.

Speed states that all compression fractures are caused by an exaggeration of the normal curves of the spine due to hyperextension. In compression fractures of the vertebral bodies associated with displacement the upper fragment moves forward and sometimes laterally as well as the upper segment of the spine is displaced forward. If pressure of the bone affects the cord pressure near the anterior hemorrhage follows. The pressure of the hemorrhage may lead to the death of axis cylinders or cells in the anterior horn. When nerve cells in axis cylinders are destroyed their regeneration within the cord probably never occurs but if the relief of compression due to hemorrhage or exudate is not too long delayed the function of the nerve fibers may be restored.

The irregularity of the spine in compression fractures is increased by shrinking of the ligaments and changes occur in the muscles and the blood and circulation become impaired. The author states that no matter how evident the symptoms of complete collapse once the patient is well always be given the best of the doubt in diagnosis. The reduction of compression of the cord. All non-progressive malalignment is treated by increasing the permeability of the vertebrae by opening of the laminae. The cord may be injured in it. In the case of a fracture of the blood vessel. The laminae may must be removed. The lesion in the vertebral tissue and the nerves. Consideration of the vertebral tissue. According to the type of fracture the treatment is different. It is different until a healthy point at which the flow begins to be established. The pharynx is affected by the pressure. The

may be increased by gently stroking the inner side of the thighs.

According to the other common policy early catheterization is done possibly a few hours after the accident. When cystitis develops catheterization should be abandoned.

Cystoscopy is contraindicated as it may set up other foci of infection. Cystostomy may be of aid for the paralysis of the extremities. Daily massage with movement of all joints in the paralyzed area is indicated. A plaster of Paris corset should be applied to support the spine. Sometimes spinal fixation by a bone graft may be best.

Two cases are reported with complete autopsy findings and the article is illustrated with two photomicrographs. S. C. WOLDBER, M.D.

**Cottalorda J. Experimental Study on Fractures of the Acetabulum** (Recherches expérimentales sur les fractures du bassin par extension et abduction). *Ly. ch.* 93 3.

The author studied the mechanism of production of fractures of the acetabulum due to a direct cause. A direct cause is a force applied directly through the head and neck of the femur. The force was applied by a blow with a large wooden block which engaged the surface of the upper end of the femur over the largest possible surface. When the subject is in the prone position fracture may be produced easily by an even relatively slight fall or blow. The subjects were cadavers of well nourished men between 20 and 45 years of age who died from some acute condition. They were laid on the side opposite that upon which fracture was desired and held by an assistant in order to conserve the elastic cushion of the muscle masses.

Fracture by bursting of the acetabulum was produced by a force directed obliquely downward in ward and slightly backward applied upon the entire external surface of the upper end of the femur with the limb in extension, force internal rotation and a position intermediate between abduction and adduction which brings the femoral head into contact with the fossa of the acetabulum. The minimum contact between the two surfaces was established by forced internal rotation.

The four resulting anatomico-pathological types of fracture from a direct cause were:

1. Fracture by detachment in which the fossa was entirely detached from the crescentic articular cartilage of the acetabulum and broken into two nearly equal fragments. The displacement was toward the pelvis and lifted the obturator foramina and nerve which could be seen through the line of fracture. The condition showed the possibility of obturator neuralgias immediate or late that are frequently suggested by the symptoms and sequelae of fractures of the acetabulum.

2. Rectilinear fracture into two fragments in which the principal line of fracture was tangential to the upper border of the fossa. A V-shaped fracture extended from the principal line to the upper

brim of the acetabulum. In some cases the V-shaped fracture was turned toward the pelvis.

3. The classical fracture into three fragments in which the lines of fracture in the fossa seemed to reproduce well the fetal position of the Y cartilage of the acetabulum.

4. Star-shaped fracture into four fragments in which four lines radiating from the center diverged respectively toward the upper border of the ischio-pubic incisure, the antero-inferior iliac spine, the ischium and the upper border of the great sciatic notch. Of the four fragments two were iliac, one was pubic and one was ischial.

WALTER C. BURKET, M.D.

**Mathieu P. A Malunited Subtrochanteric Fracture of the Femur Treated by Oblique Osteotomy with Extension in Flexion and Abduction** (Otéotomie oblique sous-trochantérienne en flexion et abduction pour une fracture consolidée du fémur). *Bull. et mém. Soc. d'h. de Pa.* 1923 21 671.

A 9-year-old child with a malunited subtrochanteric fracture of the right femur had a pronounced limp and marked antero-external bowing of the upper end of the femur. The author performed an oblique subtrochanteric osteotomy to make flexion possible. To obtain abduction it was necessary to trim the tapering end of the lower fragment. This transformed the oblique into a cuneiform osteotomy with the base outward. Extension in flexion and abduction was maintained by means of suspension apparatus. Satisfactory anatomical and functional recovery resulted. WALTER C. BURKET, M.D.

**Estes W. L. Jr. Fractures Near the Ankle** (*Atlas of Fr.* 923 5 592).

The author divides fractures near the ankle into supramalleolar, separation of the lower epiphysis and the tibia and fibula, and fractures involving the ankle joint—anatomically, fractures of the malleoli and lower ends of the tibia and fibula. On the basis of the mechanism by which they are produced, ankle joint fractures are classified as abduction fractures, external rotation fractures, adduction fractures, flexion fractures, extension fractures, and compression fractures.

In abduction fractures the internal malleolus is torn near its tip or center or less commonly, the internal lateral ligament is ruptured, the malleoli remaining intact. If the force continues the inferior tibiofibular ligament is ruptured and diastasis of the tibia and fibula results. If the ligament holds the external malleolus will be fractured. Abduction fractures of the first degree are fractures of the internal malleolus alone. Those of the second degree are fractures of the internal malleolus or rupture of the internal lateral ligament with fracture of the external malleolus or the shaft of the fibula with or without diastasis of the inferior tibiofibular articulation. Those of the third degree are fractures of the internal malleolus or rupture of the

internal ligament with fracture of the external malleolus or the shaft of the fibula with or without diastasis of the tibiofibular articulation or fractures of the external surface of the tibia and lateral displacement or dislocation of the astragalus

External rotation fractures of the first degree are oblique fractures of the lower end of the fibula. Those of the second degree are oblique fractures of the fibula with fracture of the internal malleolus or rupture of the internal lateral ligament with or without fracture of the posterior margin of the tibia or external surface of the tibia. The fracture of the fibula may be high with diastasis of the tibiofibular joint or fracture of the external articular surface of the tibia. External rotation fractures of the third degree are fractures plus posterior dislocation of the astragalus.

Adduction fractures are classified as follows: first degree transverse fracture of the external malleolus; second degree longitudinal fracture of the internal malleolus near the base and fracture of the external malleolus.

Internal rotation fractures have not been recognized as distinct from adduction fractures.

*Extension fractures are rare.* Some extension is present in many external rotation fractures.

Flexion fractures are also rare. Isolated fractures of the anterior margin of the tibia are probably the only recorded fractures of flexion.

Fractures of compress on may be marginal fractures or T or Y fractures.

Fracture of the posterior margin on the lower end of the tibia is common in association with other lesions. Isolated fracture of the lower posterior tibial margin is comparatively rare but twenty-seven cases have been reported. The cause is usually force exerted from below upward, the foot being in plantar flexion or extension. A positive diagnosis can be made only from the roentgenogram. A cast should be applied with the foot in an over corrected position and dorsal flexion.

JOHN MITCHELL, M.D.

## ORTHOPEDICS IN GENERAL

Sayre, R. H. Errors in Orthopedic Diagnosis. *J. 1st & 2nd State Med. Soc.* 1923 24:33

In lateral curvature of the spine the angulation of the ribs resulting from the rotation is often mistaken for the gibbus of tuberculosis and an aneurism which has eroded the vertebrae may cause a knuckle and symptoms suggesting Pott's disease.

A common mistake is the diagnosis of torticollis as arthritis of the cervical spine. In the latter condition the head usually looks down instead of up and there is difficulty in opening the jaws. Other characteristics include the attitude of holding the head between the hands, disinclination to lie on the back and inability to rise from this position without supporting the head or turning on the side.

In disease of the dorso-lumbar vertebrae the head is often thrown back to transfer the weight of the upper part of the body from the anterior portion of the vertebrae. These cases are sometimes thought to be torticollis.

Undoubtedly the greatest error occurs in the differentiation of low back pain due to Pott's disease, inflammation of the sacro-iliac and lombo-sacral articulations from disorders of the female genito-urinary system. Sayre reports a case in which after several years of treatment for Pott's disease an operation for ventroflexion of the uterus resulted in a complete cure.

At times it is difficult to tell whether a patient with the right thigh flexed on the abdomen with intense pain and an elevated temperature is suffering from appendicitis, a psoas abscess or acute inflammation of the hip. In the differentiation of appendicitis the history should help. If the hip is not involved it will be possible to obtain movement in the joint. Attitudes due to post-diphtheritic or other paralysis may suggest Pott's disease but a carefully taken history and physical and X-ray examinations should lead to a correct diagnosis.

R. C. LOEBGAN, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Jean G. Traumatic Direct Subcutaneous Ruptures of the Common and External Iliac Arteries  
(Ruptures traumatiqes ou traumatiques directes des artères iliaques communes et externes) J. d. Ch. 93 331 303

Traumatic ruptures of the common and external iliac arteries without a lesion of the abdominal wall or peritoneum or a fracture of the pelvis are rare. Only six cases have been found in the literature—the author's case making seven.

The cause is a violent abdominal trauma such as that caused by a fall or the kick of a horse. The mechanism of the rupture is the crushing of the vessel between the compressing agent and the wall of the bony pelvis. The arteries are separated from the bone only by the fibers of the psoas muscle and are held in place by a fold of the iliac fascia which prevents their displacement by external force from which the other abdominal organs may possibly escape. Torsion and elongation are not considered causes.

The lesions vary with the degree and direction of the violence. There may be any degree of contusion of the arterial wall, a lesion of the intima alone of the intima and media or of all coats. The level of the lesion may be high on the common iliac or low on the external iliac. The vein also may be injured, but no arteriovenous aneurism of this area is known.

The symptoms vary with the degree of rupture of the arterial coats. When media and intima are torn, retraction and rolling up occur and thrombosis is inevitable. Signs of ischemia in the leg develop. The artery may rupture late. When all three coats are torn an enormous hematoma rapidly appears which spreads from the pelvis to the thighs. Signs of severe hemorrhage with a mass in the iliac fossa follow.

The prognosis is very grave. In seven known cases there was only one survival. Death may be delayed from one to three weeks and is preceded by gangrene of the leg.

Operation is indicated imperatively as soon as the condition is suspected. If there is contusion without rupture, the thrombus, if recent, should be removed by arteriotomy and this should be followed by ligation of both ends of the vessel. When all three coats are ruptured, positional hemostasis should be attempted and treatment given for shock. Later a large laparotomy opening should be made and the artery sutured or ligated. In the author's case ligation was done because of the difficulty of suture through the contused tissues of the walls of the artery.

In connection with the report of the author's case the six cases found in the literature are reviewed briefly.  
HELLOG, SPEED, M. D.

Leriche, R. The Surgical Treatment of the Remote Consequences of Phlebitis of the Leg (Étude du traitement chirurgical des suites éloignées de phlébites du membre inférieur) P. e. s. m. d. 1 r. 1923  
xx 309

Little is known with regard to the prognosis of phlebitis in the lower extremity. In some cases of phlegmasia alba dolens the late results are poor while in others there is very little functional loss. While the cause of these differences has not been established, it occurred to Leriche that as sympathectomy has proved of value in the treatment of arterial obstruction it might also relieve venous obstruction due to inflammation.

Recently he had an opportunity to test this theory in the case of a 26-year-old man who at the age of 11 suffered an attack of typhoid complicated by phlebitis on the left side which persisted for two months. After a year subpubic varices appeared, but in 1914 the patient was accepted for the army and served through the war. After his discharge from the army in 1919 when he walked a great deal his left leg at times seemed very heavy. In May 1922 while walking his left leg gave way and he fell. Thereafter he was kept in bed for one month. The leg showed no edema but often became cramped. For two months the leg was again normal but at the end of that time the pain recurred and the leg again became functionless.

The patient was a vigorous man in spite of recent alcoholism and syphilis for which he had had the usual treatment. The finding of the general physical examination was negative except for abdominal varices on both sides and varicocele. The left leg showed no edema or nerve disturbances but the calf measured 3 cm. and the thigh 1 cm. more in circumference than the right.

In September 1922 under spinal anesthesia the great vessels of the thigh were exposed for a distance of 15 cm. below Scarpa's triangle. In the cellular tissue many abnormal veins were discovered. The artery was isolated and was found to be contracted. Its caliber became greatly diminished after contact with an instrument even before sympathectomy was performed. The vein which was closely adherent to the artery was separated only with difficulty. It appeared very small, flattened and empty down to a point where there was a valve a few centimeters above the knee. Below that point the vein was of normal caliber. The tissue about the femoral vein seemed thick and hard.



Leriche concludes that there was a true local bliter in the femoral or popliteal vein and that the posterior veins carried practically all the return the anterior veins in functioning.

A sympathectomy of the artery was performed and about 2 m. of the femoral vein was resected. No ligature was needed to control hemorrhage. When the patient got up on the tenth day there was no edema of the leg. A month and a half later although he had to walk a great deal the leg had no abnormality. Four months later it was still without edema or pain. The distal anastomoses remained as before.

The remission of the thrombosis microscopically seemed to have left its venous characteristics with it having still the same artery. There was no trace of inflammation and the endothelium was normal. Most of the muscular wall had disappeared and replaced by fibrous tissue.

The author urges careful study of all cases of phlebotomy to determine whether there is local inflammation of the vein which may be relieved by sympathectomy and then resection.

KRUL S. R. MD

#### Patel A Jugulo-Carotid Arteriovenous Anastomosis of the Base of the Skull Operated upon in 1915

(Anastomosis of the Jugular Vein and Carotid Artery at the Base of the Skull) L. A. Patel, M.D., J. 1915, 34

The author reports a case of arteriovenous anastomosis of the jugular vein and carotid artery at the base of the skull from a hemorrhage which penetrated from behind the mastoid process. The shell fragment was situated in the middle of the line anterior to the ear. The injury was received in August 1914.

At operation in April 1915 the right lateral sinus was exposed through the mastoid and the greatly dilated internal jugular vein and the common carotid just proximal to the bifurcation were ligated in the neck and the hemorrhage was removed. The immediate result of the operation was removal of the pharyngeal fistula, pharyngeal fistula, and the patient returned to active life. In the vertigo and general malaise disappeared.

Re-examination six and a half years after the operation showed the following: the right lateral sinus of the internal jugular vein was greatly dilated in the neck and the angle of the jaw was forced to a full pulsating condition. The submaxillary region with flow of venous blood to the patient's complaint of swelling of the head, loss of the internal carotid artery. The blood pressure in the left leg in the arterial system. The terminal artery in the internal carotid artery was found to be in the internal jugular vein and the carotid artery was found to be in the internal jugular vein.

The author concludes that ligation of the internal carotid artery is a dangerous procedure although

lessening the vascular phenomena is not without danger to the cerebral circulation.

On the basis of the results of Halsted's finding that carotid path rapidly flows jugular carotid aneurysm Leriche has advised operation in Halsted's case in spite of the operative difficulties.

Barclay reported a case of arteriovenous anastomosis of the internal jugular and external and internal carotid arteries of origin which was first treated by ligation of the common carotid and the internal jugular. Several months later following an effort the signs of arteriovenous anastomosis recurred. Subsequently Barclay ligated all tributary vessels and extirpated the anastomosis. WALTER C. BERRY MD

#### Birt F Transplantation of Blood Vessel (Birt's Case) (Transplantation of Blood Vessel) D. C. Birt, M.D., J. 1915, 34

Aneurysms are common in China because of the widespread infection of syphilis. In a case reported by Birt an aneurysm of the popliteal artery was ligated and the size of an apple within ten months. The artery was resected for a distance of 25 cm. together with a piece of the vein and the arterial fistula covered by free transplantation of the vein. The technique of suturing is shown in two sketches. The suture line was embedded in the muscular tissue. The healing followed. The arterial circulation remained unimpaired. After six weeks when the patient left his bed a distal pulse was palpable in the transplanted vein. K. R. 10 (2)

#### Klot O Permeability of the Cuthrie C. C. End Result of Arterial Transplantation (Klot's Case) (Permeability of the Cuthrie C. C.) J. 1915, 34

The autotransplantation of an artery to an artery by end-to-end anastomosis is a simple surgical procedure. After a few weeks the anastomosis is patent and the blood flow is practically the same as that of the unoperated vessel. The autotransplantation of an artery to an artery is a simple surgical procedure. After a few weeks the anastomosis is patent and the blood flow is practically the same as that of the unoperated vessel.

The permanent effect of the anastomosis and the blood flow is a simple surgical procedure. After a few weeks the anastomosis is patent and the blood flow is practically the same as that of the unoperated vessel. The permanent effect of the anastomosis and the blood flow is a simple surgical procedure. After a few weeks the anastomosis is patent and the blood flow is practically the same as that of the unoperated vessel.

It is now possible to place implants when serving the purpose for more than four to six weeks.

suffer more or less uniform aneurismal dilatation with consequent danger of secondary thrombosis. The dilatation results from the loss of muscle tissue and of most of the elastic fibers. The degree of the dilatation is determined by the equilibrium between the resistance of the newly formed tube and the blood pressure. The original graft integrates and is slowly absorbed. Calcareous degeneration may occur in amount depending upon the rate of absorption of different kinds of segments. Small islets of osteon tissue or cartilage may lie between calcareous deposits and surrounding granulation tissue. The transplant serves as a temporary conduit and framework until it is more or less replaced by a permanent living structure by the tissue of the host. Elastic and connective tissues resist dissolution longest. Formaldehyde fixed and vessel not impregnated segments retain their shape and structure longer than segments that are untreated or kept in salt solution or blood. This insolubility has the advantage that it does not give away during the reestablishment of the new vessel but has also the disadvantage that it is not well adapted to the growing tissues. Collagen fibers of the transplant lend their substance to the reconstruction of new fibers and may become at least temporarily welded.

Refrigerator preserved transplants are durable and before their course is like that of other devitalized graft. The changes are directly proportionate to the time since the operation and the time the tissue was kept in cold storage.

In contrast to venous segments arterial segments show little dilatation. Both are reinforced by encapsulating connective tissue. The final functional results of vascular transplants living or dead homologous or heterologous are very similar. Glass and metallic tubes are of doubtful permanent value because the tissues never permanently weld them and there is danger of secondary hemorrhage from loosening of the surrounding inflammatory tissue.

The author reports in detail the transplantation of a rabbit's aorta to a dog's common carotid. The aorta was smaller than the carotid. After one month it was the same size. After seven months it showed a fusiform dilatation to a greater size than that of the carotid and its wall was regularly thickened with secondary calcareous and calcareous deposits. The anastomotic junction showed an unusual thickening. Histologic examination revealed an endothelial lining surrounded by laminated fibrous tissue layers in the center of which was the homogeneous remains of the transplant. No muscle fibers were seen. The transplant had been invaded by the connective tissue of the host and absorption and calcareous degeneration were in progress. The host had supplied the new tissue which clothed the absorbing transplant within and without.

The article contains also the report of the transplantation of a devitalized formaldehyde fixed rat aorta of one dog into the common carotid of another. The vein had been preserved for sixty days in 2.5 per cent formalin solution. The day pre-

ceding the operation the vein was washed in dilute ammonia dehydrated in absolute alcohol and impregnated with paraffin oil. When the circulation was established its diameter was greater than that of the carotid artery. The pulse of both carotids remained the same. One month later when the transplant was exposed it showed patency and marked dilatation. After the dog had led an active life of eleven years during which time two litters of pups were reared and several were whelped it died from sarcoma of the sternum which had formed generalized metastases.

The transplant and new wall were patent and formed a fusiform aneurismal sac, a large part of which was occupied by a recent dark red clot with a channel alongside corresponding in size to the lumen of the carotid. Within the clot was embolic sarcomatous tissue similar to the growth on the sternum. The segment was lengthened. The inner surface was covered with endothelium from the host except on the side occupied by the clot. The remains of the transplant (dead connective tissue partially destroyed elastic fibers and calcareous degeneration) were surrounded within and without by new fibrous tissue from the host. Band like folds of connective tissue projected into the lumen. The carotid artery above and below the graft was normal. The incomplete thrombosis was due probably in part to the circulation and the slowing of the circulation before death. WALTER C. BURKET, M.D.

## BLOOD AND TRANSFUSION

Crile, G. W. Studies in Exhaustion of Hemorrhage. *Am. J. Surg.* 1933, 154.

Crile's studies on the effects of hemorrhage with out trauma date back to 1904. In his earlier experiments he attempted to discover the limits of compensatory recovery after hemorrhage by determining the level to which the blood pressure could be reduced without affecting the functioning of the circulatory system. His findings were as follows:

- 1 The greatest fall in the blood pressure after a rapid hemorrhage occurred when approximately one third of the blood was removed and was irregular. In slow hemorrhage the pressure fell was more regular.

- 2 In death after hemorrhage the respiratory center was the first to fail.

- 3 After a hemorrhage amounting to approximately 60 per cent of the total amount of blood spontaneous compensation sometimes brought the blood pressure back to a level at which life could be maintained.

- 4 The degree of activity of the vasomotor center seemed to regulate the power of compensation after the hemorrhage.

- 5 Respiratory inhibition was produced by manipulation of the larynx after severe hemorrhage but this did not affect the blood pressure.

- 6 It was impossible to determine accurately the amount of blood that can be lost in proportion to

the body weight before the power of compensation is lost

7. Animals previously exhausted by trauma malnutrition or disease lost the power of compensation after hemorrhage earlier than normal animals

The histologic changes noted in the brain, cord, liver, and suprarenals in exhaustion from hemorrhage are the same as those discovered after physical trauma. Crile like Cannon found that hemorrhage causes increased activity of the suprarenals.

The hydrogen ion concentration of the blood after acute hemorrhage is reduced. The immediate effect of an acute hemorrhage on the cardiovascular system is stimulation to compensatory activity. Immediately after a hemorrhage the brain shows an increase in function, active cells, and temperature. If the hemorrhage is prolonged or repeated this activity gradually declines and there is evidence of fatigue.

The effects of hemorrhage on the liver and suprarenals are similar to its effects on the brain. Experimental and clinical hemorrhage cause the same effects as those seen in physical trauma and other conditions of exhaustion.

A slight hemorrhage in a weak subject may be more serious than a severe hemorrhage in a robust subject. The old saying that a certain proportion of the blood can be lost without serious results is not always true.

The illustrations in the article show the laboratory and clinical findings mentioned and are of unusual interest.

H. A. OLD, M. C. M. P. M. D.

Brill, N. E. and R.enthal, N. The Curative Treatment of Splenectomy of Chronic Thrombocytopenic Purpura Hemorrhagica. *Am. J. M. S.* 93:1-50

Weil's disease, chronic thrombocytopenic purpura hemorrhagica, is an affection with an acute, a subacute, or a chronic course and having definite characteristics which distinguish it from the other purpuras. In the past the subacute and chronic varieties were frequently fatal and it is in these cases that splenectomy has proved beneficial. The authors describe the symptoms in detail.

Splenectomy was done in two cases in which a fatal termination was rapidly approaching. One of the patients was a girl and the other a boy. Both were suffering with the chronic, intermittent form of the disease and had developed the condition in childhood, one at the fifth and the other at the eleventh year of life. Both had been subjected to every known method of treatment to stop the bleeding and had been absolutely incapacitated for several years. A most intense anemia was present, the hemoglobin was below 20 and the red blood cells numbered about a million. Both had had repeated transfusions, the girl ten and the boy three.

The results of splenectomy were brilliant. In both cases the bleeding has been entirely stopped and the patients' color has returned. In the girl the hemoglobin is 90 and the erythrocyte count 5,500,000. In

the boy the hemoglobin is 80 and the erythrocyte count 4,816,000. The patients are now able to walk whereas previously they had been bedridden and their mental outlook is normal.

In order to offset the oozing of blood which occurs from all cut and exposed surfaces during the splenectomy, the patient should be given a transfusion immediately before the operation and in order to overcome shock, another transfusion should be given after the operation.

Bleeding from the mucous surfaces ceases a few minutes after the removal of the spleen and the bleeding time at once returns to normal.

In conclusion the authors state that they feel justified in assuming that in chronic thrombocytopenic purpura, splenectomy is a life-saving measure and should as such be employed in all grave cases. There is considerable evidence to indicate that it is also curative. In Kaznelson's first case there has been no recurrence of the disease in a period of over five years.

It appears that thrombocytopenic purpura is a condition involving the reticulo-endothelial system, chiefly the spleen and bone marrow. This assumption appears to be confirmed by the fact that the spleen of the girl whose case is reported was large, weighing 1,400 gm., and on microscopic examination showed a large increase in the number of reticular cells. The boy's spleen, although considerably larger than normal, weighing 340 gm., did not show nearly as marked an increase in these elements. Both these patients seem to be entirely cured. It is possible that the larger the amount of reticulo-endothelial structure removed, the better the result. If this is true, splenectomy may be expected to give more favorable results when the spleen is very large than when it is small.

CARL R. STEINKE, M. D.

Stuber, B. and S. No. M. Experimental and Colloid Chemical Studies on the Nature of the Coagulation of the Blood. (Experimentell und kolloid-chemisches Untersuchungen über das Wesen der Blutgerinnung). *Verh. d. d. tsch. Ges. f. d. f. M. d.* 93:3-9

The attempted explanations of the nature of the coagulation of blood may be divided into two classes, the first comprising those based on the fermentative nature of the coagulation processes, the second those based on the purely physico-chemical nature of these processes. Later studies have caused the authors to forsake the fermentative for the colloidal chemical view.

In the experiments reported fibrinogen and thrombin were used, the solutions being separated by a semipermeable membrane. Coagulation resulted. The fact that thrombin causes coagulation by withdrawing water from the fibrinogen proves that the reaction is not a fermentation.

The action of thrombin is dependent upon such factors as substrate and an optimum hydrogen ion concentration. The laws of colloidal chemistry govern its activity. It is not a ferment.

The incoagulability of oxalated blood and citrated blood which has been attributed to the precipitation of calcium as insoluble calcium oxalate is due to the formation of an ionized and hence incoagulable complex union of fibrinogen and salt. Calcium is not essential for coagulation. It has only the general importance of bivalent cations which favor the precipitation of colloids. STEGEMAN (Z)

Schulhof O. The Effect of the X Rays upon the Coagulation of the Blood (Wirkung der Röntgenstrahlung auf die Blutkoagulation). *Gyógyászat* 923 414

In persons who showed no tendency to hemorrhage Schulhof tested the coagulability of the blood and serum previous to and eighteen hours after roentgen irradiation of the spleen, the popliteal and cervical lymph nodes, a substernal goiter and the lungs. He determined the thrombin and fibrinogen content by the Wohlgemuth ferment method. Stephan's assumption that irradiation of the spleen stimulates the reticulo-endothelial cell system and thereby increases the production of ferment was not confirmed.

Schulhof seeks the cause of the coagulation of blood in the products of cellular catabolism acting either directly as catalytic substances or indirectly as parenterally incorporated albuminous substances.

TEMESVARY (G)

## LYMPH VESSELS AND GLANDS

Descamps P and Turnesco D. The Lymphatic Vessels and Glands of the Jejunum and Ileum (Les vaisseaux lymphatiques du jejunum et du ileon). *Bulletin de la Société de Chirurgie de Paris* 923 1178

In a study of the lymphatics of the jejunum and ileum in thirty-five newborn infants and ten adults the authors found that the lymph vessels of the former are derived from an area situated above the diverticulum of the umbilical loop of which Meckel's diverticulum is the constant remnant while those of the latter arise in an area below the diverticulum. From the viewpoint of vascularization therefore the jejunum and ileum must be considered as separate.

W. A. BRENNAN

Gager L. T. Lymphatic Obstruction in Elephantiasis (Elephantiasis). *Annals of the New York Academy of Medicine* 93 11

Edema due to non-parasitic lymphatic obstruction has been called chronic trophoedema, edema dystrophique, elephantoid edema, and non-parasitic elephantiasis. It occurs in non-tropical climates and is characterized by a slow insidious onset and a chronic painless non-inflammatory course. It is commonly white, hard and free from tenderness. As a rule it involves the lower extremities affecting the subcutaneous tissues and to a less extent the skin. Sensory changes are rare, the general health is unimpaired and the common

systemic diseases generally associated with edema are absent. Complaint is made only of the weight size and unsightliness of the enlarged parts.

In the past year five cases of edema of the sporadic type have been studied in the Cornell Clinic. All of the subjects were women. In no case was there a history of inflammation or skin affection. The swelling had appeared gradually and had been present for from nine months to thirty years.

The author states that it is questionable whether such a condition may be described correctly as elephantiasis, as this term calls to mind the huge pachydermous enlargements due to lymphatic obstruction associated with filariasis. Strictly speaking however the two characteristics of elephantiasis are chronic edema and secondary proliferation of the subcutaneous connective tissue and the pathological basis of the edema is a blocking of the circulation of the lymph.

Manson states that lymph stasis alone does not produce elephantiasis. Matas defines elephantiasis as a progressive histopathological state characterized by chronic inflammatory fibrosis or hypertrophy of the hypodermal and dermal connective tissue which is preceded by and associated with lymphatic and venous stasis and may be caused by any obstruction or mechanical interference with the return flow of the lymphatic and venous currents in the affected part. He maintains also that for the characteristic hypertrophy of the subcutaneous tissues a secondary and repeated bacterial invasion, usually streptococcal, is essential in addition to mechanical obstruction, whether the latter is caused by filarial lymphangitis, adenitis or thrombophlebitis. The greater occurrence of the disease in tropical climates is due to greater exposure of the unclothed body to trauma, parasites and skin infections.

However the fact that when elevation, compression and massage do not give relief the edema disappears when new channels are formed for the lymph flow proves that lymphatic obstruction alone may be the cause.

In the study of edema of the arm Handley excluded venous obstruction as a factor as he reduced the edema by replacing the lymphatic channels with silkworm gut. Drainage in the leg did not have a similar result.

In cases of chronic edema in the lower extremities treated by Lanz by multiple incisions in the fascia lata and the introduction of fascial strips into the marrow of the femur permanent relief was obtained.

Kondoleon has had greater success with a simplified technique of fascial division and removal. He divides elephantiasis into a mild form manifesting only lymph stasis and a more advanced sclerotic type. Causes of obstruction in his cases included acute inflammation of the foot, tuberculosis of the knee joint, total extirpation of the inguinal nodes and traumata.

In cases which have come to operation there is conclusive evidence of the rôle of lymphatic blockage. Cases without a history of inflammation may



# SURGICAL TECHNIQUE

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Merklen P and Hirschberg F Autohæmo-therapy in Furunculosis Pyodermitis and Other Local Infection (L i hém thérap d ns la f l e l py le m te et aut a inf t s local ) B H t m S med d 18p de Pa 923 35 xv 8

To emphasize the value of autohæmotherapy in furunculosis pyodermitis and other local suppurations the authors report in detail fourteen cases treated by this method including eight cases of furuncle two of suppurating folliculitis two of lymphadenitis one of wound infection and one of oedematous peritonitis. In the eight cases of furunculosis the lesions were healed in five and the treatment failed in three. Two cases of folliculitis and one of tonsillitis yielded quickly. One case of adenitis was only partially influenced the other underwent marked amelioration.

Frequently two injections sufficed for healing or produced more or less decided improvement.

The treatment consisted of a dose of 5 to 15 c cm of the patient's own blood drawn and injected immediately into the buttock. The dose was repeated every second or third day. When the injections failed to act vigorously the patient was seen daily.

After one autogenous injection extensive skin lesions of multiple points of suppurating folliculitis usually dry up large furuncles subside directly developing furuncles are aborted and softening and evacuation of the core are accelerated. In some cases however no effect is noted. If three injections cause no change it is useless to continue with this form of treatment. W A T E R C B L U M B E R M D

Paetel W The Treatment of Pyocyanus Infection in Suppurating Wounds (Z B k m p f g d l y ) f k t r d e W d ) D i k m d B l k q 3 l x 82

The use of the acid of large amounts of potassium crystallized boracic acid is recommended.

K A L B (Z)

Laskownicki S The Use of Lugol Solution in Surgical Tuberculosis (Lugol's e g g n h r u g h T i k l ) f i k g f k q 3 75

The author treated tuberculous abscesses and cervical lymphadenitis of strychnine poisoning. The injection was an active hyperemia in the wall of the abscess hastening the proliferation of the connective tissue and its chemotactically upon the leucocytes the pus becomes thinner and the abscess cavity shrinks very rapidly. In addition the

iodine has a favorable effect upon the general condition a fact which in lucid Bier to use sodium iodide in the treatment of tuberculosis.

Of twenty three patients treated only with injections of Lugol solution in doses of 1 to 100 c cm every five to seven days nineteen were cured in from two weeks to three months. No unfavorable sequelae were observed. The advantages of Lugol solution over iodoform glycerin are its stronger and more rapid action and its cheapness. J U R A S Z (Z)

## ANÆSTHESIA

Carrea J U The Technique of Inducing Trunk Anæsthesia of the Superior Maxillary Nerve by the Posterior Palatine Duct (Té n pir la n t tr ular lel ne io m il r sup o p el end t p l t i o p t e ) S m i a d d 923 x 44

Carrea recommends anæsthesia of the trunk of the superior maxillary nerve through the posterior palatine duct not only for work on the teeth but also for operations on the nose and in the zones innervated by the superior maxillary nerve. The posterior palatine duct is easily approached. Its entrance can be found by locating the two palatine foramina which lie upon the line of the tuberosities of the maxilla. The detail of the author's late technique is described and illustrated.

W A B R E N A N

Roussiel A New Technique for Inducing Anæsthesia of the Abdominal Sympathetics (N u ell t ch ju l e thé d sympath i e b d m u l ) B H d 923 807

The induction of regional anæsthesia of the splanchnic nerves by the anterior abdominal or posterior paravertebral route often gives complete anæsthesia of the stomach and biliary passage. Operations on the colon spleen kidneys appendix and sigmoid flexure require combined anæsthesia of the splanchnic and inferior mesenteric nerves.

Combined anæsthesia may be obtained by a single injection of 40 to 50 c cm of 0.5 per cent seurocaine. The injection should be made at the right side of the origin of the mesentery under the root of the transverse mesocolon here the superior mesenteric artery leaves the anterior surface of the duodenum to pass into the root of the mesentery. A fine needle is introduced at this point under the right leaf of the mesentery and 20 c cm of the anæsthetic are injected. The needle is then oriented so as to reach the base of 1 or 2 cm in the thickness of the mesentery and 0.5 c cm of seurocaine are injected. The fluid diffuses along the trunk of the superior mesenteric artery to the iliocecal angle and in the retroperitoneum.



# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Gallay J. Mechanical Strengthening of the Image in Roentgenography (El refor d mecan c en rad og fi) *Ci y l b* 9 3 1 55

The author refers to Piergrossi's method of using a photographic membrane of double emulsion to obtain two images. This procedure is similar to chemical reinforcement of the image. In the development of the two negatives they are given the same intensity of tone in all their parts. When the images are united the positive gains in detail and strength. There is no gain in contrast because all of the tones have been strengthened equally.

In the author's modification of Piergrossi's method he uses a Lihenfeld ampulla without a localizer, an anticathode distance of 45 cm, a membrane of double emulsion, a spark of 9 cm, a current of ma, and an exposure of five seconds. He obtains two negatives in which only the white parts and those with a medium tint are reinforced and the dark regions remain perfectly transparent. This method he calls mechanical reinforcement. The article is illustrated. W. A. BRENNAN

Sicard J. A. and Forestier J. Roentgenological Exploration by Means of Iodized Oil (Expl a t n r di log que p r l bule i) *P s s m d* Par 19 3 xvi 493

In certain concentrations iodized oil is remarkably opaque to the X rays. The authors have obtained very clear roentgenograms in experimental investigations with this vehicle.

Iodized oil is well tolerated by the tissues, does not cause pain, does not leave any unpleasant or painful sequelae, and does not have any general toxic action. Moreover, it acts as the apocritically and when it is used in painful regions it has a sedative effect. It enters the epidural and subarachnoid cavities and even the bronchopulmonary spaces which previously were impenetrable by the X rays.

The authors use a preparation called lipiodol. This is an organic combination of poppy oil containing 54 gm of oil to the cubic centimeter.

In the exploration of the subarachnoid space, an injection of 1 to 2 cc is made by lumbar puncture.

With suboccipital puncture and injection, lipiodol has been found of great value for subarachnoid and high spinal explorations. Whatever the technique of injection, if the subarachnoid region is obliterated by a compressive process the lipiodol will be held or imprisoned and the roentgenogram will show the site of the intraspinal compression.

The authors describe also the technique of exploring the epidural space and discuss the roentgen

findings in such conditions as segmental meningitis and medullary compression.

By means of injections of heated lipiodol, Sicard and Forestier have been able for the first time to obtain perfect roentgenograms of the bronchopulmonary cavities. From 10 to 20 cc of the lipiodol are injected through the natural laryngo-tracheal route by means of a long cannula passed through the glottis or by puncture through the cervical fascia and the cricothyroid membrane. By placing the patient in different attitudes the various regions may be examined. Tuberculous pleural or pulmonary cavities and bronchial dilatations may be thus manifested.

Because of its great opacity to the X rays, its tendency to spread, and its harmlessness, iodized oil deserves a high position among the substances suitable for roentgenological exploration. Its use has made possible an effective investigation of cavities which previously could not be explored with the X ray. W. A. BRENNAN

Holzknacht G. What Causes the Healing Action of Roentgen Rays? (*Ursache d. Heilwirkung d. Röntgenstrahlung*) *Strahlentherapie* 19 3 vi 85

Pordes F. In Explanation of the Action of X Rays Is It Necessary to Assume Functional and Growth Stimulation? (*Arh Rad i c*) *Flekt the py* 923 xvi 89

HOLZKNECHT states that although the effects of roentgen irradiation have been carefully observed and minutely described in the manner in which the rays act has received very scant attention until very recently. During the last few years great effort has been directed to the exact measurement of dosage and to the devising of methods which will assure the equal distribution of a definite amount of roentgen energy in every unit of radiated tissue.

Attempts to explain the action of the rays have met with the difficulty of trying to harmonize diametrically opposed actions, one of apparent stimulation and the other of retardation resulting from different dosages of the same agent. Holzknacht maintains, however, that although it is known that roentgen rays destroy living cells and that the destructive action varies with the sensitiveness of the cells and the dose employed, absolute proof of a stimulative dose is lacking. If there is such a dose the question arises as to whether the effect should be ascribed to damage done the cells or a selective action on the function of increased cell production. The assumption that small doses stimulate and large doses destroy is entirely contrary to fact for in the first fifteen years of roentgen therapy in which only small intensities were used the records mention only the retarding and damaging effect.





comparable to the frequently described stage of cancer cell degeneration following roentgen ray treatment. The finding contrast strongly with the survival and growth of grafts implanted in unexposed regions in the same animal. Since the changes are the same whether the cancer cell have been directly exposed *in situ* or merely implanted in the previously exposed skin it follows that it is impossible to establish microscopically a direct injury from the roentgen ray as the principal factor in the therapeutic action of the roentgen rays on cancer.

ADOLPH HARTUNG M.D.

### RADIUM

Quirk D. The Relative Value of Unfiltered Radium Emanation in Deep Therapy. *J. Rad.* 1933 3:8

Quick discusses interstitial radiation and compares it with the various forms of external radiation. He defines interstitial radiation as implanting with in the tissues the unfiltered tubes of radium emanation. As his comparisons are based on gamma radiation only he includes the use of needles containing radium element.

Unfiltered radium emanation tubes are glass capillary tubes 0.3 by 3.0 mm in size which contain from 0.5 to 2 mc of emanation. Quick uses stronger tubes in the more bulky tumors and 0.5 mc or less in those that are smaller. For average lesions about 1 mc is the most practical. The tubes are sterilized by boiling in alcohol then introduced with a special hollow

trocarn needle being distributed throughout the mass homogeneously. The emanation integrates slowly decreasing in strength approximately 15 per cent per day. Thus 1 mc of radium emanation gives a total radiation equivalent to 132 mc hrs.

The advantages of this method include uniform distribution of radiant energy throughout the tumor and almost invariably good results. Complete regression of the tumor is attempted in a single application when this is done there is absence of fibrous tissue due to previous radiation, the local effect is more intense, the constitutional reaction less and the treatment is less trying to the patient.

The flexibility of the method offers many advantages. The tubes may be buried in areas where it is very difficult to maintain surface applicators accurately in place. They may be employed in many ways with surgery particularly for lesions of the neck and intra-abdominal growths.

The use of the emanation tubes is confined largely to localizing growths. A danger associated with their employment is that of spreading infection. The danger from foreign body action of the tubes is practically negligible and that of sloughing and of injury to nerves and blood vessels is not serious.

The author concludes by stating that his six and one-half years of clinical experience with bare tubes have convinced him of their superior efficiency in the treatment of malignant tumors because of the more desirable tissue reaction they produce, the flexibility of their application and the advantage of beta radiation.

WILLIAM L. BROWN M.D.

# MISCELLANEOUS

## CLINICAL ENTITIES, GENERAL PHYSIOLOGICAL CONDITIONS

R. Harrison H. and H. J. C. 1. The T. samia of  
Severe peripheral Illness. J. L. A. C. 11/2

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to cancer Troister and Wolf have shown recently that potassium salts favor the growth of cancerous grafts

In conclusion the following theory is offered

Under the influence of a high frequency light wave (or an equivalent radiation) emitted by a radio-active element—even potassium—the cells take on a certain vibration resulting in karyokinesis according to their sensitivity to the light wave. In a state of normal equilibrium this process ends in the karyokinesis necessary for growth and regeneration of the tissues but if for some reason the equilibrium is broken the intensity of the radiation becomes greater and the number of karyokinetic divisions increases up to the point of tumor growth

RELLOGG SPEED M D

Roncalli A Survey of the Experimental Investigations on the Etiology and Pathology of Carcinomatous Neoplasms (Del m d ome va i te sulla fede dell dag e sper mende let olog a el a p t gen si dell nf o od infi mmazio i carc omatos ) An i l d chr 19 3 1 43 65 699

The essential or primary cause of the occurrence and development of carcinomatous neoplasms in the viscera and the parenchymatous and other tissues of the higher vertebrates is solely and exclusively the complex action of a living substance of parasitic nature which is foreign to the organism in which the blastoma develops

Carcinoma develops because among the elements composing the tissues there are certain types of cells which are potentially anaplastic. Although these cannot of themselves cause malignant changes they form the nidus wherein the parasitic organism causing carcinoma develops

The blastomycetes are found in a large number of epithelial connective tissue and mesenchymal carcinomata in the cellular protoplasm among the cellular pillars in the supporting connective tissue occasionally within the nuclei and rarely in the protoplasm of the metastatic growths

The blastomycetes found in the midst of carcinomatous substances appear as spherical or oval kidney shaped and triangular organisms some are extremely irregular in outline. They vary in size from that of a red corpuscle to that of a large sarcomatous cell. They consist of a homogeneous hyaline capsule with concentric rings

The blastomycetes found in carcinomatous tissue are subject to degenerative changes either a loss of chromatin or calcification. The latter process may increase their size to that of a giant cell of an osteosarcoma or a large tubercle

Frequently the blastomycetes developing in the substance of a blastoma of the higher vertebrates can be cultured in pure form provided they have not undergone degeneration

In the process of their development blastomycetes elaborate a toxin which causes a local inflammatory reaction eventually resulting in a neoplastic

change of a carcinomatous type and ultimately in metastasis

The blastomycetes of the higher vertebrates cause malignant neoplastic changes by the formation of soluble toxins which act as chemical irritants

The toxin of blastomycetes is a substance possessing colloidal properties not unlike those of the toxins of the various pathogenic micro organisms

When the toxin of the blastomycetes enters the circulation it comes into contact with all the cellular structures but only cell with a lessened power of resistance unite with it

Cells of lowered anatomical and physiological resistance evince a marked affinity for these toxic elements consequently they are potentially pathologic potentially anaplastic

While the endotoxin of certain micro organisms is responsible for various types of infections and inflammations the toxin of the blastomycetes is responsible for one particular type of reaction—that of carcinomatosis

The toxic colloid of the blastomycetes excite an atypical reaction a proliferation of these potentially anaplastic cells not by an extra or intra cellular catalytic action but by a physicochemical combination with the protoplasm of the cell whereby is formed a new product a pre-carcinomatous protoplasm from which carcinomatous cells develop. As these cells are the result of an unnatural combination between vegetable and animal colloids and are endowed with certain specific attributes transmitted without loss or change to the successive generation of cellular structures they possess functional and biological properties not found in any other type of animal cell

These cells once detached from their source of origin and carried by the lymph and blood channels to remote or proximate areas are capable of multiplying indefinitely of maintaining their characteristics and of reproducing the same action and reaction as that manifested at their site of origin. They cause the phenomenon of metastasis by one of the four following methods

1 By their multiplication at the new site i.e. metastasis by specific action of the differential neoplastic cell. In this type of growth the neoplasm has a histologic structure identical with that of the primary mass

2 By multiplication of the embryonal cell not differentiated from the ovoblastoma or the spermioblastoma i.e. metastasis by specific action of the undifferentiated neoplastic cell. In this type the histologic structure of the metastatic growth may sometimes differ from that of the primary neoplasm the ovoblastoma and the spermioblastoma but always shows a marked difference from that of the tissue in which it is formed

3 By multiplication of the connective tissue cells of the region in which the carcinoma cells take hold a phenomenon determined by the elimination of a parasitic toxin contained within the malignant epithelial cells i.e. metastasis by direct infective

action of the carcinomatous cell. In this case the histologic structure of the metastatic mass differs from that of the original neoplasm.

4. By blastomatous changes of the connective tissue element at the site to which the carcinomatous cells of the original growth have migrated—cells containing blastomycete or other organisms capable of originating anaplastic change i.e. metastasis by indirectly infective action of the anaplastic cell and by directly infective action of the parasites contained within the migrated cell. In this case the histologic structure of the metastatic mass is completely different from that of the primary blastoma.

Every carcinoma is the result of a functional and morphological perversion of the cells constituting it; consequently the cell that forms the structure of a blastoma can never be analogous to those of the adult or embryonal organs of man but must be atypical. Their secretory products must be abnormally.

Morphologically the carcinomatous cell differs from the physiologic and approaches the pathologic cell of the various infective and inflammatory processes presenting all the anomalies of form and all the deviations of development and reproduction that are observed in the cell of the various acute subacute and chronic stages of inflammation. Accordingly it may be stated that before the cell becomes definitely cancerous they must pass through all the stages of change from an acute to a marked chronic inflammatory reaction.

In physiology the recapitulation of phylogenesis is ontogenetic; the ease in pathologic carcinoma is ontogenetic.

While spontaneous carcinoma is a disease which begins with an infection or inflammation of a cell or group of cells in which blastomycetes have become localized, experimental carcinoma is a disease which begins with a toxin or is one of a group of diseases due to the inoculation of the toxin of the blastomycetes or the inoculation of the blastomycetes themselves.

The injection of pure culture of blastomycetes or the toxin of the parasite into animal, particularly the dog, has been followed by the development of various types of carcinoma such as epithelioma, adenocarcinoma, lymphoma, sarcoma, and glioblastoma.

Anatomical, pathologic, clinical, and rapid necropsy indicate that the type of parasite responsible for blastomata is multiple but that only the blastomycete has been recognized.

Recent studies of carcinomata in the human have shown that many of these blastomata are due to ultramicroscopic organisms. This suggests that further investigation may reveal an ultimate microscopic organism as the cause of spontaneous carcinoma.

The future treatment of carcinoma should consist in the excision of the mass plus the injection of sera either a specific serum or a chemical capable of destroying carcinomatous cells beyond the area of excision.

Because of the multiplicity of the parasitic types the specific immune sera and specific chemicals essential for the treatment of carcinomata must be of various types. As many sera are necessary as there are species of organisms.

Immune sera will be efficacious only insofar as they possess a tripartite action: antitoxic, antineoplastic, and cytolytic. James A. Ricci, M.D.

Kupferberg, New Methods in the Treatment of Cancer (Neurology and Radiology) 1923, 1, 6.

It has been observed that recurrences after roentgen ray treatment are refractory to the roentgen ray but respond to radium and that recurrences after treatment with radium are refractory to radium but respond to the roentgen ray. The author has noted however that these recurrences react again to the means which were originally successful (radium or roentgen ray) if colloid copper or selenium is introduced into the recurrence nodules by multiple deep injections with a Pravaz syringe using glauconic typhoretic means.

Excellent results have been obtained by embedding capillary glass tubes filled with radium emanation particularly in cases of carcinoma of the tongue and the prostate. Disadvantages are only the expense from the irritation by the foreign bodies (especially in the center of the tongue) which persist long after their removal. To obviate this the author had capsules of the same shape made from an absorbable material and filled them with thorium which has the same half value time of four days as the gaseous radium emanation and being solid do not require a glass capillary. The tumor is pieced with trocars and the thorium pencils are let down into the hollow spaces so formed. At the end of about two weeks the pencil is absorbed without having caused pain or irritation and during this time the thorium is continuously working on the tumor by its alpha and beta rays.

Another method of employing the raditions of radium consists in the use of a long period of time is the use of the soluble and the insoluble salt of the first two of thorium. The thorium which has a half value time of one and three quarters years. The soluble salt has been already successfully used in intravenous injections by Lazarus of Berlin as an auxiliary to the local treatment of carcinoma. The author had the soluble salt prepared in hermetically sealed ampoules sterile and in suspension (25 mgm. of thorium oxide to a half ampoule corresponding to a gamma rad at one of 0.1 mgm. radium bromide). After this slightly milky fluid had been well shaken he injected it drop by drop into accessible carcinoma nodules infiltrating the tumor again and again. Without any reaction on the tumor forthwith began to shrink and after six to twelve weeks had almost entirely disappeared. The blood noted the filtrated in soluble salt could be seen in the roentgenogram for as long as four

weeks. Up to the present time five cases have been successfully treated and have been under observation for three months.

On account of the long half value time of radiothorium (one year and three quarters) a second and more extensive injection is not advisable before six months at the earliest. The best dosage and the possible cumulative effect of the rays must be determined. The combined use of the roentgen rays is of advantage as this liberates the secondary rays of the deposited insoluble radiothorium. By this treatment a particularly rapid and successful result is obtained in a case of recurrent carcinoma of the uterus.

TUELKEN (Z)

#### Paterson H J Are the Results of the Operative Treatment of Cancer Better Than Twenty Years Ago? *B. J. M. J.* 9 3 556

Believing that the operative results for cancer are not any better today than twenty years ago the author warns against general discussion of the lymphatic barriers about malignant neoplasm. The primary growth should be removed first and the involved regional lymphatics at a later date. The incidence of three year cures following radical operation for cancer of the breast by the Halsted method (41 per cent) is practically the same as it was when the axillary gland were dissected only when they showed definite involvement.

WILLIAM I V N WAGENET MD

#### Juengling O Roentgen Treatment in Surgery

(J. ntg. ab.) dl ng d r Ch. ug.) St. hl.  
th ap 9 3 76

After a short technical and biological discussion the author reports the results obtained with roentgen treatment in the surgical clinic of the University of Tübingen. The dosage is based upon the so-called biological system of measurement the unit of which is the skin erythema dose.

Juengling distinguishes three stages of reaction: (1) the early reaction which appears a few hours after the treatment and disappears in a few days; (2) the actual roentgen reaction all phenomena during the first four weeks; (3) the late reaction all symptoms appearing after the first four weeks. Concomitant reactions are pruritus, itching, and in severe cases of 100 per cent of the skin erythema dose. When they occur symptoms of the treatment is indicated and no further loss may be given until they have completely disappeared. Because of the danger of a cumulative effect the treatment should never be given during the period of latency. In the connection with the period of latency of eight to ten weeks if no chronically indurated oedema of the skin has developed after this length of time the treatment may be repeated. It should then not be given again until after the lapse of at least three months.

The destructive effect of the carcinoma cells is usually a poor result of the skin erythema dose but in some cases smaller doses have been successful. The results in carcinoma of the breast are generally good in

Juengling's experience. The technique is a 30 cm focal skin distance, 2 mm Al (when deeper 0.5 mm Zn) at 130-150 per cent dose.

In the last few years six carcinomas of the eyelid with involvement of the eyeball have been treated with the roentgen ray in the Tübingen clinic. Four have remained cured for 10 years, the two others are still under treatment. No stimulation of growth by the treatment has been observed.

For carcinoma of the lip not too far advanced the author advises operation. Within the mouth roentgen treatment does not give very satisfactory results, radium is more effective. In cases of carcinoma of the tongue extirpation of the glands is necessary.

Carcinoma of the alimentary tract do not offer a good opportunity for roentgen treatment as the administration of the smallest dose is apt to damage the spleen and the adrenals. In inoperable carcinoma of the stomach however this treatment should be tried. In cases of carcinoma of the rectum roentgen treatment should be given only when the condition is inoperable and after the establishment of an artificial anus. The results are usually not very encouraging but Perthes' clinic reports cures of four years duration. Common to all cases of rayed carcinoma of the rectum are severe intoxication phenomena.

highly greatly lower the vitality. The application of the minimum dose in carcinoma of the rectum makes as great a demand on the organism as operation when the carcinoma is operable.

In the treatment of carcinoma of the bladder prostate and bile ducts with the roentgen ray experience is still too limited to justify a statement of the results. With regard to carcinoma of the breast it is generally agreed that all operable cases should be operated on as early as possible. In inoperable cases it is sometimes possible to achieve excellent palliative results and occasionally to obtain a permanent cure. In the Tübingen clinic one such favorable case was rayed three years ago for metastases in the skin. As a rule immediate good results have been followed by metastases. The roentgen technique in carcinoma of the breast is particularly difficult. For the present Juengling has discontinued the prophylactic roentgen treatment of the condensation on account of the general destruction connected with it (changes in the blood and connective tissue).

The results of exclusive roentgen treatment of carcinoma of the tongue, stomach and rectum do not encourage its use as a prophylactic measure in cases which have been operated on. In canceroid of the skin and carcinoma of the lip the results of operation are so good that postoperative prophylactic raying is superfluous.

Roentgen treatment of sarcoma offers better prospects. At least this is indicated by its immediate effect. With the present technique prompt relief of symptoms is obtained in about 30 per cent of the cases. In 45 per cent however only partial retrogression of the tumor results. The sensitiveness of sarcoma to the action of the roentgen ray varies

within very wide limits. There are absolutely refractory sarcomata such as the melanoma and also very sensitive forms such as the lymphosarcoma which may regress after the application of even a small fraction of the dose. In judging upon the excision of a specimen of tissue for diagnosis does not stimulate a sarcoma to more rapid growth.

In sarcoma of the jaw roentgen treatment should be given only when the condition is inoperable in other cases better results are obtained by operation (a permanent cure in 30 per cent). In sarcoma of the sternum should encircle and pelvis and in periosteal sarcoma roentgen treatment is more efficacious than operation. In central sarcoma of an extremity no time should be wasted on roentgen treatment. In the results of roentgen treatment of brain tumors, upward improvement has been observed. In cases of fibromata of the nasopharynx the prognosis is good.

Röntgen rays are not a specific in tuberculosis. Their non-specific action is illustrated daily in foci in different situations. Roentgen treatment in tuberculosis should be regarded as supplementary to conservative measures. A symptomatic cure is obtained in from 80 to 90 per cent of the cases. Tuberculous peritonitis is well suited to roentgen treatment especially the dry forms. The dose is 10 per cent of the skin erythema dose. In cases of tuberculosis of the kidney and of the prostate no positive cure has been seen in patients. In tuberculosis of the bladder the roentgen ray may be used as an adjunct to the conservative measures. In bone and joint tuberculosis is operated on indicated by the presence of a separate sequestrum. Children with bone and joint tuberculosis should be given conservative treatment in this the roentgen ray is a valuable adjunct. Roentgen treatment is especially suitable for tuberculous of small bones and joints and cases of mixed infection. Good results often follow roentgen treatment of joint tuberculosis in the aged. In all joints of the extremities Juergensen uses the so-called recumbent method with bolus alba or radoplatin. The roentgen ray is especially valuable in the treatment of tuberculosis of the wrist but in that of the knee and tendon sheaths its results are generally unfavorable.

Roentgen treatment of actinomycosis is particularly successful.

The article is concluded with a technical discussion of the most recent methods of the roentgen rays and a table of doses for different depths under various conditions. KIPP (Z)

Sydney and Hoelzel: The Treatment of Sarcoma of the Shoulder Girdle. *Bull. Ch. Ch.* 923 (C. S. 59)

A study of indications for roentgen treatment was made in thirty-three cases of sarcoma at the Wuerzburg clinic. Ten of the cases of recurrence after operation were found inoperable at operation and six were recognized as inoperable at the be-

ginning and only five were conditionally operable. In 33 per cent the primary tumor disappeared under roentgen treatment, only 18 per cent remained completely uninfected. The total number of cases treated by X-ray and combined treatment in cases operated upon and subsequently during the past three years was sixty-four. In only seven of these was the treatment of a palliative nature. Of the remaining fifty-five patients twenty-five died during the year following the treatment and thirty are still alive. The greatest length of time since the treatment in the cases of those still living is four years. The author assumes that all those who have remained well for over one year are out of danger. If this is correct the number of permanent cures was eighteen (33 per cent). This percentage agrees with the report of Stitz and Wintz on extragenital sarcoma treated by the roentgen ray exclusively.

In the Wuerzburg clinic sarcomata were treated with a relatively high dose the sarcoma dose being regarded as a medium dose. In cases of bone tumors the carcinoma dose was employed from the first. Prophylactic roentgen treatment after operation was carried out in the same manner but seldom more than 50 per cent of the skin-erythema dose was applied. Repetitions of the treatment were undertaken if at all only after at least eight weeks had elapsed. Prophylactic treatment is especially indicated in sarcoma because there are thoroughly proved cases which have been cured by roentgen treatment and sarcoma often metastasizes by way of the clefts in the tissue and the lymph channels.

As to primary X-ray treatment of sarcoma the authors hold that there can be no question but that it is definitely indicated in cases of inoperable sarcoma. In primary sarcoma of the lymph gland in which surgery is usually of no avail the results of roentgen treatment are very good. Improvements and even a temporary clinical cure have often been observed even in inoperable cases. In sarcoma of the skin in uncovered parts of the body especially the face roentgen treatment is preferable to surgery. If prompt results are not obtained a repetition of the treatment is indicated by the danger of skin necrosis. Other pathological phenomena in the healing of the wound in case operation is performed later. The choice between X-ray and surgical treatment is most difficult in sarcoma of the shoulder girdle the pelvis or extremity. Sarcoma of the soft part generally reacts well to the roentgen ray. If it is operable without mutilation it is better to operate and apply the roentgen ray afterward. The results of resection of the shoulder girdle or pelvic girdle are often very poor. With regard to perosteal sarcoma the author states that in spite of the favorable report which have been made it is not at all certain how much roentgen treatment can improve the unfavorable prognosis but the results so far obtained are encouraging. CRETE (Z)

# HOSPITALS MEDICAL EDUCATION AND HISTORY

Newman G Permeation of the Medical Curriculum by Preventive Teaching *Brit M J* 1933 347

In 1922 by a resolution of the General Medical Council the medical curriculum in Great Britain was completely revised to make it more preventive in purpose. The medical schools have already made arrangements to carry out the recommendations of the Council.

There were two fundamental reasons for the new attitude. First it has come to be recognized that as compared with the twenty three centuries since Hippocrates we are living in a Golden Age of medicine the chief glory of which has been the advance of prevention and secondly it is now generally acknowledged that the ultimate purpose of the science and art of medicine is not to cure the individual patient only but to seek out the laws or principles which govern health.

Newman gives statistics for England and Wales of four victories in preventive medicine namely typhoid fever smallpox tuberculosis and infant mortality. The factors which have given the results in these four conditions are improved sanitary environment vaccine personal and social hygiene and enlightened motherhood.

The medical curriculum can be permeated with the spirit and methods of prevention to aid in conquering 80 per cent of the common conditions the doctor is called upon to treat.

The student should ask himself Why is this patient here? What is the physical or social complex that has made his body depart from the normal? To what stresses and exhaustion has he been subjected? How did he acquire this condition that troubles him and me?

The preventive attitude of the student cannot be left to opportunity. It must be provided for. First of all he should get a clear and fair scratch line. He must know the physiological standard of health and capacity from which he starts. Next he must become keen in the search for the primary and secondary causes of the morbid condition he is investigating. Lastly he must habituate himself to think widely and resourcefully of the means of prevention. Poverty industry personal habits social conditions and channels of infection must be considered as well as the grand category of preventive therapeutics including drugs vaccines sera organotherapy sunlight electricity radium massage psychology and the wider factors of environment. He must learn by ingenuity to apply and adapt all knowledge to the harnessing of disease as a whole. The patient is to be cured yes but out of the patient is to be wrought an understanding of and an attack upon and the prevention of the particular disease from which he suffers. While the student may not be able to practice prevention as he learns to practice the cure the issues raised being beyond his immediate control he should remember that to prolong human life and make it fuller better and more effective is the master task of mankind.

CARL R. STEINKE M.D.



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NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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**Surgery, Gynecology and Obstetrics**

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Editorial communications should be sent to Franklin H. Martin, Editor, 30 N. Michigan Ave., Chicago.  
Editorial and Business Offices: 30 N. Michigan Ave., Chicago, Ill., U.S.A.  
Published for Great Britain by Tindall & Cox, 8 Henrietta St., Covent Garden, London, W.C.

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## EDITOR'S COMMENT

NO matter what one's attitude may be toward the great social and political experiment being made at the present time in Russia he cannot help feeling a profound admiration for the courage and steadfastness of Russia's medical men in days of storm and stress. Their ranks decimated at the outset of the bolshevist régime handicapped by poverty, starvation and the lack of practically every form of medical equipment they have carried on in their work of humanity under handicaps that would seem insurmountable to us accustomed to the privileges and opportunities of America.

Throughout the past year the predominating subjects in Russian medical literature have been those concerned with the results of starvation and exposure. Typhus and its many complications, gangrene, noma, scurvy and more lately gastric ulcer have been frequently discussed topics. In this month's issue of this journal appear a number of abstracts dealing with the subject of gastric ulcer as presented at a recent congress of Russian surgeons in Leningrad. Wolkoff (p. 206) reports the results of 281 cases of gastric ulcer treated by simple gastro-enterostomy without pyloric exclusion. Hesse (p. 208) discusses the results of various methods of resection and the advantages of resection as compared with gastro-enterostomy. Schaeck and Kornow (p. 206) describe the results in 136 cases of gastric and duodenal ulcer treated by various methods. The reader will note the consistently high mortality rate due in a large degree to the debilitated physical condition of the patients before operation, the relatively large percentage of males affected and finally the frequent incidence of complications, particularly recurrences, stenosis of the stoma and peptic jejunal ulcer. After comparing the results reported with those obtained by Finsterer, by Balfour Judd and others of the Mayo Clinic and by Sir Berkeley Moynihan, one must agree that simple gastro-enterostomy does not offer a satisfactory surgical solution of the ulcer problem. In adopting for ourselves another method as the treatment of choice we would not for a moment disparage the methods and results obtained by our Russian colleagues. We have only admiration for their steadfastness and courage in the face of overwhelming difficulties.

Both American and European journals furnish interesting reviews on the subject of renal surgery to this month's issue. From Italy Cassuto contributes a brief article on the treatment of pyelitis (p. 231). From France come the descriptions of Martin (p. 225) and of Duverney and Dax (p. 225) of their methods of treating pyelonephritis complicating pregnancy. From Germany comes Payr's suggestion as to the cautery treatment of cysts of the kidney (p. 232) and from Denmark Rosing's interesting conclusions on renal calculus (p. 232) drawn from twenty nine years of experience.

A number of significant contributions on the subject of radiation therapy will attract workers in this ever widening specialty. Withers discusses certain biological principles of radiation therapy (p. 261). Wood's summary of recent work at the Crocker Institute on radiation dosage (p. 261) a critical appraisal of the value and limitations of radiotherapy by two such experts as Case (p. 263) and Wood (p. 262) an account of injuries observed by Schwarz following roentgen treatment of uterine myopathy (p. 270) a report of two cases of severe X-ray injuries of deep tissues by Muehlmann and Meyer (p. 263) and the effect of the roentgen ray on bone discussed by Mueller (p. 247) form a helpful and comprehensive symposium on radiation therapy.

Among the many varied subjects of interest discussed this month a few others also deserve special mention. Fisher's discussion of the physiological principles underlying the treatment of joint conditions (p. 249) Hiley Groves' review of the subject of arthroplasty (p. 249) Simon's report on the successful results of conservative treatment of bone and joint tuberculosis (p. 248) and the careful study of osteitis fibrosa by Dawson and Struthers (p. 240) will prove of particular interest to the orthopedic surgeon.

Rib fractures and their sequelae (p. 254) the inefficacy of alcohol as a sterilizing agent (p. 259) the incidence of cancer in Switzerland (p. 267) the intestinal origin of gitter (p. 196) actinomycosis (pp. 244, 267, 268) subjects taken at random from a large number of interesting reviews represent phases of surgery of which the up-to-date practitioner must have an intimate and accurate knowledge.

# INTERNATIONAL ABSTRACT OF SURGERY

MARCH 1924

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

George E J Toren J A and Lowell J W The  
Study of the Ocular Movements in the Horizontal Plane *Am J Ophth* 1923 35 v 833

A machine called the ocular kinemometer was devised to determine the point within the eye through which the visual axis of the eye would pass at all times during any excursion in the horizontal plane. This point is not the center of motion but is fixed in space with reference to the instrument. It is determined by means of an adjustable telescope mounted on an arc with a center of rotation arbitrarily designated as O. As the visual axis and the axis of the telescope can be made to coincide the point O and the point on the visual axis to be determined coincide. The relation of this point to the eye or its location within the eye can be accurately measured from the corneal vertex. This is accomplished by means of a microscope which is mounted at right angles to the telescope so that the corneal vertex may be observed at a right angle to the visual axis.

In practice the patient's head is fixed and by adjustments the visual axis is made to coincide with the axis of the instrument in an arc 30 degrees nasalward and 30 degrees templeward. When this is accomplished it is found that the corneal vertex invariably advances when it is turned nasalward and recedes when it is turned templeward observations being made at 10 degree positions. A point equidistant from these points would be the center of motion. It was impossible to locate it but a point very closely equidistant from the position of the corneal vertex over an excursion 30 degrees nasalward and 20 degrees templeward was found. This may be considered a fixed point but after passing 20 degrees templeward the recession occurs at a greater rate and the point becomes a variable. The fixed point is 13.4 mm posterior to the corneal vertex and 1.65 mm nasalward from the visual axis.

Computations from these experiments show that the cornea in its arc of 60 degrees moves 15.86 mm the optic nerve junction moves 9.73 mm and the center of motion is nearer the posterior pole. Error in the position of the point O is possible because of the fact that fixation of the macula occurs upon a small area which the authors believe is only  $\frac{1}{4}$  mm in its maximum diameter but the variation due to this in the 60 degree arc would be too small to affect the readings. MANSFORD R WALTZ M D

Lj T M Congenital Total Bilateral Ophthalmoplegia *Am J Ophth* 1923 35 v 816

Two cases of bilateral ophthalmoplegia are reported. The subjects were sisters the third and fourth of a family of five children. The oldest child a boy is normal the next born a boy who died at the age of 7 years had the same condition as the two girls whose cases are reported. The fifth child is normal. The family history is otherwise negative and in the cases reported the Wassermann test is negative. The two cases are almost identical.

Since birth the lids have been ptosed only slight elevation being possible through action of the frontalis muscles. The eyes are almost stationary in a divergent position a little function being elicited only in the internal recti. The pupils are small irregular and unequal they react only to a pencil of strong light directed on the macular region and then only by a slight alternate contraction and dilatation. Atropine semidilates the pupils eserine has no effect. The media and fundi are negative to the ophthalmoscope and refraction shows a high degree of hyperopia with a small cylinder added. Some nystagmus was elicited during ophthalmoscopic examination. Neurological examination showed the children to be normal in other respects.

At operation the external muscles were found pale and flabby and the tendons were thin and narrow with mal insertions. A Reese resection on the internal recti and a tenotomy on the external recti gave no results.

The author discusses the following conclusions

1 The condition in the cases congenital and probably hereditary

2 It is probably nuclear in origin the ganglia being partially intact as shown by the slight degree of function of the internal rectus and sphincter. However it is difficult to determine whether the process is due to defective development of the nuclei or to degenerative changes in the muscles *per se*

3 The action of the muscles is so slight that they are of no aid in the diagnosis

4 Operation on the muscles in the condition is not successful from any standpoint. Cosmetically, excision of the globes in the primary position to the orbital contents may give better results

5 The Hunt-Tansley operation for the correction of congenital ptosis is not satisfactory because of the resulting cicatricial deformity

MANFORD R. WALTZ, M.D.

**Roller and Bussy. Dilatation and Stenosis of the Lachrymal Passages (Etiology and Treatment)**  
Lachrymal Passages (Etiology and Treatment)  
Lachrymal Passages (Etiology and Treatment)

1 The treatment of dacryocystitis the object is to remove the diseased lachrymal passages and to provide free channels for the drainage of the lachrymal fluid. The classical treatment consisted in the extremely painful use of bougies and catheters because narrowing of the nasal canal was considered the cause of the lachrymation. Infection, dilatation of the lacrimal punctum and fistula. More recently ophthalmologists tend to rely on lacrimal sounding.

The authors have measured, dissected and studied by serial section in minute detail 100 diseased lachrymal ducts that were removed in a single block. From this material they made the following determinations:

1 The lachrymal valves are inconstant in location, form and number. They are embryonic rests and malformations which play an important rôle in hindering the drainage of the tears and favoring infection.

2 In 43 per cent of the cases the nasal canal was completely obliterated to a variable extent into a fibrous cord. In such cases catheterization would be useless and would aggravate the stenosis.

3 Dacryocystitis is characterized by a combination of the following processes: (1) leukocytic infiltration of the follicles; (2) denudation of the epithelium with proliferation of inflammatory cells; (3) connective tissue hyperplasia. The preponderance of any one of the processes establishes the clinical type of the condition.

4 Dacryocystitis is usually of nasal origin, the inflammatory, degenerative or hyperplastic lesions being most extensive in the lower part of the canal.

5 The lachrymal system and canal are a single structure and react to infection essentially the same way and as a whole.

6 Obliteration of the canal does not cause dilatation of the sac. In the cases studied the most marked dilatation occurred when the lachrymal

passage were freely permeable. The dilatation of the sac probably depends on a trophic sclerosis involving both the sac and the canal. There may be dacryocystitis with either atresia or dilatation of both the sac and the canal.

7 The old theory attributing dilatation of the sac to stenosis of the canal is doubtful.

8 The failure of conservative operation is accounted for by the fact that dilatation of the sac may occur in the absence of stricture of the canal.

9 In the treatment the removal of the entire diseased lachrymal passage is indicated.

WALTER C. BURR, M.D.

**Callahan J. F. The Treatment of Acute and Chronic Dacryocystitis with Silver Cannulae**  
Lachrymal Passages (Etiology and Treatment)

Callahan reports the successful use of a metal cannula in the treatment of acute and chronic dacryocystitis. The cannula is of silver or gold plate enough to be passed into the canal and withdrawn from the nasal end below the inferior turbinate and sufficiently rigid to remain in place. Callahan uses the largest cannula that can be introduced into the duct without force and leaves it in place for three months.

In acute dacryocystitis he opens the process through the skin, passes a large probe to the nose through the duct and then introduces the cannula into the duct so that its upper end is below the orbital rim.

In chronic dacryocystitis the method of Agnew is employed, an incision being made through the conjuncta between the caruncle and the inner canthus, the lids are carried through the sac down to the bone. This incision may be enlarged by cutting upward and outward.

At the end of three months cocaine is instilled into the conjunctival sac and applied in the region of the lower turbinate. The annulus is removed from the nasal cavity with a small hæmorrhoid which is turned so that the cannula is wound around it.

The chief virtue in treating dacryocystitis in this manner lies in the sound surgical procedure of draining an abscess from the bottom.

VIRGIN A. SCOTT, M.D.

**Lambert W. E. Ocular Complications of Nasal Sinus Disease**  
Sinus Disease (Etiology and Treatment)

From a review of the literature concerning the relationship between ocular complications especially retrobulbar neuritis and sinus disease the conclusion is reached that the management of the blind spot is very important evidence of such a relationship and that therefore careful mapping out of this spot should be done frequently.

If the other obvious causes of optic atrophy disturbances can be eliminated, no operation upon the posterior ethmoidal and sphenoidal cells is justifiable even though clinically a direct evidence of dissection may be wanting. The author reports cases of this type.

OTTO M. RORT, M.D.

**White L. F.** An Anatomical and X Ray Study of the Optic Canal in Cases of Optic Nerve Involvement *Bost M & S J* 1923 clxx: 74

In an attempt to determine the reason for recovery in some cases of optic nerve involvement and loss of vision in others White had roentgenograms taken of many skulls to determine the size and conformation of the optic canal. Patients with old and recent nerve involvement and twenty five normal persons were studied in this way.

In the skulls of forty stillborn infants it was found that the canal was of the same diameter as in adults but was very short. In the cases of normal persons only five canals (10 per cent) were oval. The average diameter was 5.35 mm. In the twenty five cases in which the nerve was involved there were twenty six oval canals (50 per cent). The nerve was involved in nineteen of these and in twelve of the twenty four round canals. Twelve of the subjects with oval canals were operated upon; one recovered. In the cases not operated upon there was no improvement. Of the ten persons with round canals one recovered without operation; six were subjected to intranasal operations and three were subjected to tonsillectomy.

The author states the conclusion that in cases of severe optic nerve involvement with an optic canal of 4 mm the opening of the posterior sinuses is indicated. When the canal measures 5 mm the nerve will recover spontaneously or following local nasal treatment. *Vir: Wescott M.D.*

## NOSE

**Granger A.** Positive Identification of the Sphenoid and Ethmoid Sinuses *J Am M A* 1931 x: 336

The position taken by the author makes use of the glabella and the alveolus as the two fixed points. Heretofore the nose has been one of the principal points of support but this is not practical in the head from motion. The use of the nose as a support is eliminated by the employment of the head rest consisting of the use of a tablet with a rupture for the nose which is attached to the table and surrounded by a strip in thick and in depth by means of which entering a support for the head is not held securely in place.

When the nose is placed in this aperture cut in the tablet the size and position of which was carefully predetermined—the head is automatically centered. The anterior part of the film is the use of the nose and compressed without causing pain or discomfort and the head can be maintained on the same two points—the glabella and glabella—on high dried skulls rather than they are placed on the head rest with their nasal bones inserted in the aperture made to receive them. These two points which bear a very constant relation to each other even in heads of different shapes and sizes afford a firm support for the head and going away with the tendency to pivot in the direc-

tion of its longitudinal or its transverse diameter a tendency always present when the nose is one of the points on which the head rests.

The best angle was found to be one of 107 degrees when the sphenoid shadow was projected furthest up. This angle was held by means of a block with an angle of 17 degrees.

For a thorough understanding of the landmarks one must read the original article in which the illustrations are of as great aid as the text. Suffice it to say that the sphenoid shadow is bounded above by a curved line with its convexity up which is formed by the portion of the bony wall of the sphenoid called the optic groove. The shadow of the ethmoids is bounded above by a line formed by the inner or cerebral plate of the orbital or horizontal portion of the frontal bone and its inner boundary is indicated by the vertical shadow of the superior turbinate bones. The posterior cell lies above and the anterior cells lie below the shadow of the middle turbinate bones. *Orto M. R. M.D.*

**Kompanejez G.** Five Cases of Empyema of the Ethmoid Labyrinth with Rupture into the Orbits (Fu and Faell) *N. J. M. J.* 1919 clxx: 511  
labyrinthitis mit Durchnbruch in die Orbita *M. d. J.* 1919 clxx: 511

In four of the five cases the empyema developed from one to four months after an attack of typhus. Intranasal operations were done. In two cases it was possible to demonstrate the bacillus fusiformis and the spirillum of Vincent. In one case an epidural abscess in the anterior fossa of the skull and a defect in the lamina papyracea were found. In all of the five cases the deviation of the nasal septum and the symptom showed no characteristic difference from that seen when the purifications into the frontal sinus. Consequently the differential symptoms advanced by Guttman for the differentiation of empyema of the ethmoid labyrinth from that of the frontal sinus with external rupture was not confirmed.

*Hirzenberg (Z)*

**Bache J. A.** Fatal Air Embolism After Puncture of the Maxillary Antrum *Am J Surg* 1931 x: 433

A roentgenogram of the antrum of a man 40 years of age showed a thin lining membrane. Following the usual procedure a straight 2 mm (outside diameter) trocar was passed into the antrum through the right inferior maxillary wall. Air forced through the trocar caused the patient to collapse. Resuscitation was impossible. Autopsy showed that death was due to air embolism in the right ventricle and the conus of the pulmonary artery being filled with a foam of air and blood.

Because of this accident the trocar is no longer used without any rubber connections suction is applied to determine whether it has entered a vein the liquid is forced through without first forcing air through and air is used to clear the antrum of fluid. *Manford R. Waltz M.D.*



## MOUTH

Mellanby M. The Effect of Diet on the Resistance of the Teeth to Caries. *Proc Roy Soc Med* Lond 1923 x Sect Oct t 74

Of 302 deciduous teeth of children examined microscopically 84.5 per cent showed structural defects which the author attributes to diet deficiencies. Of these only 1 per cent showed hypoplasia on microscopic examination. The occasional secondary formation of dentine was structurally good or poor according to the diet.

Supplies on a diet including sufficient Vitamin A had better teeth than those fed a diet lacking this vitamin.

The author has attempted to prove that immunity and susceptibility to dental caries is dependent not on the environment of the teeth but upon the structural peculiarities regulated through the dental pulp and dependent principally on the character of the diet.

CHARLES W. FETTER, M.D.

D. Forest H. P. Leucoplakia Buccalis. *A. S. J.* 1931 x 474

In an attempt to review as far as possible all of the articles on leucoplakia in the current medical literature the author found that such cases are very rare. As the lesions of this disease vary materially in different persons practically all of these cases are herewith reviewed and compared.

The series of illustrations which accompany the article show the various phases in the development of the condition.

After discussing the various synonyms used for the lesion and briefly sketching its history the author defines it as a chronic and progressive affection of the mouth characterized by the occurrence upon the mucous membrane of snow white patches which are sometimes circumscribed and sometimes diffuse. He further discusses the relation with the etiology, symptoms, pathology, diagnosis, prognosis and treatment.

The etiology is unknown. Local irritants in the mouth are unquestionably factors but it is probable that the lesions of parasitic origin. The parasite is probably similar in character to the known parasite which causes syphilis and the unknown parasite which often leads to the formation of epithelioma in the same region. Whether it resembles the spirochete either it is a protozoal form similar to the plasmodium of malaria. The cause of fever, sleeping sickness or other diseases is unknown. At any rate it seems probable that it may be destroyed by the same agents that have been found to destroy the spirochete.

There appears to be a fairly well marked clinical difference between the undeveloped and the common form.

In the undeveloped form the advance is slow and accompanied by almost no disturbances. A slight turgescence of the papillae of the tongue is noticed and the normal furrows of the tongue are accentuated.

This is the so-called "parquet tongue" which after a while becomes gray and ultimately white. The papillae then become hypertrophied and covered with thick epithelium. After a period of years small ulcers and true fissures are formed.

In the common form there are functional disturbances such as stiffness of the tongue and difficulty in speech, mastication and swallowing. Later ulcers and fissures develop causing pain. Salivation and an occasional hemorrhage occur due to tearing of the tissues. The lesions are grayish white, pure white or of a glaucous or bluish white suggesting mother of pearl.

Three successive stages are described. In the first there is hyperkeratinization of the mucosa which becomes horny and hypertrophied and shows a granular layer rich in keratin or eleidin. The layer then scabs and becomes very large as a result of the thickening of the horny layer.

In the second stage ulcers are formed as the result of the excessive hardening. These take the form of fissures within the plaques and around the edges. The fissures extend completely through the mucosa as far as the papillae and cause inflammatory lesions, exfoliation, desquamation and infiltration. There may be also a pronounced change in the submucous glands.

The third stage is characterized by thickening and hardening of the dura around the plaques and sclerotic atrophy of the blood vessels and dissection compressing on an atrophy of the muscular fibers.

In the diagnosis the condition must be differentiated from thrush, acute gonorrheal stomatitis and Bedner's aphthae in infant and from aphthous stomatitis, chronic recurrent aphthae, acute papular glossitis, ulcerative tuberculois of the tongue, lichen planus, ruber and the papular form of syphilis occurring in adults.

The lesion has persisted for years and often for life.

The author reports a cure in two cases treated by intravenous injections of salarsin. He believes that this method may prove more efficient than any other.

OTT, M. K. R. M.D.

Stahl O. Operation for Congenital Cleft Palate.

End Results of Uvuloplasty According to

Langenbeck. (*Z. Oper. Chir.*)

Time post operation. Results. (See table.)

Pl. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

11 7

Hildebrand's clinical has accepted the results of the operation should be performed whenever it is not contraindicated by general weakness or disease and sufficient plastic material is present. The typical Langenbeck operation is used almost exclusively. Stahl describes its technique in detail. It is carried out under ether narcosis with the patient's head suspended and the use of a Whitehead speculum. Two lateral inci-

sions are made the mucoperiosteal covering of the palate is separated and the margins of the cleft are freshened and sutured.

The operation should be performed between the third and sixth years. The better developed and the stronger the child the earlier it may be done. At all events the correction should be made before the child begins school. In infancy the operation is dangerous because of the associated loss of blood. It should not be performed before the possibility of rational instruction in speech since children easily acquire a poor manner of speech afterward. Essential for a satisfactory result is a good nutritional condition. This was shown by the statistics of the clinic for the period of the war when clearly because of the unfavorable nutritional conditions at that time the operation was completely successful in only two of sixteen cases, only partially successful in seven and a complete failure in seven while in a total of seventy nine cases it was completely successful in only thirty nine (49.4 per cent), partially successful in thirty-one (39.2 per cent) and a failure in nine (11.4 per cent). There were no deaths. The functional result depends not alone on the successful closure between the buccal and nasal cavities but also to a great degree upon that between the velum palati and the posterior pharyngeal wall—therefore upon the length and function of the soft palate. When the latter is defective the palatal arch may be tent in by large tonsils. Atrophy of the pharyngeal wall has an unfavorable effect. Of the greatest importance is timely instruction in articulation from a person versed in the physiology of speech or a teacher of the deaf and dumb. This should be continued for at least three months.

In subsequent examinations it is a mistake to examine too many cases in succession since the keenness of one's perception becomes blunted and the occurrence of the errors expected is imagined. The slow articulation of single consonants or words is not a good test as this can often be performed satisfactorily when rapid conversational speech is unintelligible.

In the cases upon which this article is based the functional results were dependent not upon the age at which the operation was performed but solely upon the anatomical relations of the palate, pharynx and tongue and the intelligence and energy of the patient and his family. By means of plaster-of-lar impressions the author found that pronounced changes in the shape of the jaws (above all retraction of the dental arch between the first bicuspid and the first molar) were by no means most pronounced in the cases operated upon successfully before the appearance of the permanent teeth and examined again a considerable length of time after the appearance of these teeth. On the contrary they were demonstrable also in cases which had not been operated on and even in normal persons with the so-called high palate. Hence they must be considered as due in large part to decreased growth energy and masticatory pressure.

SILVERS (2)

Fantozzi G. Tuberculosis of the Tongue (*Sulla tubercolosi della lingua*) *Policlin* Rome 1923 xxx sez chir 233

Tuberculosis of the tongue is relatively rare but not so uncommon as is generally believed.

The most pronounced primary types are those due to direct exposure.

The clinical varieties may be divided into the lupus type the ulcerative or superficial type and the nodular or interstitial type.

The diagnosis is often difficult. Bacteriological and histological examinations of a fragment of the ulcer are essential.

The prognosis is good but the end results will depend upon the thoroughness of the general examination for other foci of infection. In all cases a roentgen ray examination of the thorax should be made.

The lupus type is not amenable to operative treatment. In the ulcerative and nodular types resection should be done well into the healthy tissue. This will be followed by primary healing. In very advanced cases roentgen and Finsen irradiation should be tried.

Even in favorable cases suitable general treatment should be instituted in addition to the local treatment in order to combat evident or suspected distant foci and to increase the organic defense.

W. A. BRENNAN

Truesdale P. E. Cancer of the Tongue. *Am S g* 1923 lxxviii 46

This article is based on four cases of cancer of the tongue which demonstrated the fact that except in the aged this lesion grows rapidly, invades the lymphatics early and becomes hopelessly advanced in from six to nine months. The only one of the four patients who is alive three and one half years after the operation was operated upon four months after the first appearance of the growth.

Two stages of the disease are described: the initial and the mid period.

In the initial stage the condition is suggested by: (1) a small plaque like hard smooth and polished sore; (2) a change in a simple ulcer causing it to feel slightly stiffer or firmer; (3) a very slight thickening, a denser white and furrowing in an area of leucoplakia; (4) very slight and superficial hardening in an area of leucoplakia; (5) a white warty growth or compound wart which feels at first as if it were fixed to the mucous membrane and quite superficial. It is in this initial period that the results of treatment are best.

The mid period in which the growth quickly passes from the operable to the inoperable stage is reached when the objective symptoms render the diagnosis quite obvious. The cardinal signs are the condition progresses are ulceration, pain, hemorrhage, salivation, lymphatic infection, anemia and loss of weight. The edges of the growth are rolled and prominent, seldom punched and almost never undermined.

The prognosis depends upon the patient's age the stage of the disease and the method of treatment.

When surgical treatment is given in the initial stage of the early mid period the operative mortality is not over 5 per cent and a three year cure is obtained in at least 30 per cent of the cases.

After a few days of preparatory hygienic treatment of the oral cavity the following technique is carried out.

With the patient in a semi upright position ether is administered by the intrapharyngeal method. The field of operation is prepared with iodine and a half strength solution is used in the mouth. The neck dissection is done first. A transverse incision slightly curved downward is made from a point about 2 cm. below the lobe of the left ear to a corresponding point below the right ear. The incision through the skin and the dissection of the flap are done with the knife. Then with the cautery knife the lymphatic gland bearing area is dissected *en masse* and the entire cervical region is thus exposed. In the removal of the submandibular gland on the healthy side care is taken to preserve the hypoglossal nerve and the lingual nerve between which the duct of the gland passes. In dissection close to the ramus of the jaw there is danger of injuring a small branch of the facial nerve supplying the angle oris. This nerve is superficial and very small. Its severance causes drooping at the angle of the lower lip.

When the dissection has been completed the skin margins are brought together and a rubber tissue drain is placed in either side of the neck.

The second part of the operation consists in the removal of a part or all of the tongue. The tongue is drawn forward on a retention suture passed through its tip. The mucous membrane on the floor of the mouth is then incised and dissected free, the line of separation being fully 1 cm. distant from the growth. The lingual artery standing out somewhat like a cord is next exposed by blunt dissection and tied. The body of the tongue is divided along the raphe with a crease the line of division extends wide of the growth. The diseased half of the tongue is drawn upward and removed by cutting the geniohyoglossus muscle and meeting the midline incision by a curved section at the root of the tongue.

The author refers to the work of Warren who demonstrated that the base and the body of the tongue are separate, that the lymphatic system of these two areas is quite distinct and that the lymphatic system of the two halves of the tongue is separate. Because of the facts it is feasible to leave the base of the tongue when the site of the cancer is limited to the body and to remove only one half of the tongue when only one margin has been invaded by the growth.

In the author's cases the power of speech with lingual phonetics returned oral communication being established in from seven to ten days after the operation.

Otto M. Rott, M.D.

## THROAT

Bloomfield A. L. and Feltz A. R. Bacteriological Observations on Acute Tonsillitis with Reference to Epidemiology and Susceptibility. *A. J. C. 1923 xxx 433*

The subjects studied by the authors were 200 young women members of the training school for nurses of the Johns Hopkins Hospital.

On the basis of their own experience and the reports in the literature the authors assumed that acute tonsillitis is usually an infection caused by hemolytic streptococci of the beta type. This supposition was confirmed. The plan of study was as follows:

1. A detailed survey of the experimental group for hemolytic streptococci at a time when no acute streptococcal disease was present.

2. A bacteriological study of cases of tonsillitis occurring in the group subsequently in order to determine whether (1) tonsillitis is an autogenous infection due to a strain of streptococcus previously carried by the host and if so what factors lead to the seasonal outbreak or whether (2) tonsillitis is an exogenous infection due to some external strain or strains.

3. The determination of the relation of carriers and contacts to the spread of tonsillitis in the group.

4. The determination of the relation of the season, weather, other infections, etc. to the outbreak of tonsillitis.

5. General epidemiological observations to define epidemic and sporadic disease.

The findings with regard to the bacteriology and the relation of tonsillitis to previous carrier states are summarized as follows:

1. Acute tonsillitis was invariably an infection with beta hemolytic streptococci.

2. The disease affected almost uniformly a group of persons who were not previously carriers of this organism.

3. Only one of the carriers who were equally exposed developed acute tonsillitis.

4. No peculiar clinical or bacteriological association could be demonstrated between successive cases of tonsillitis in the group.

The authors present evidence demonstrating that an extensive outbreak of tonsillitis is not a true epidemic but only a group of sporadic cases. They conclude that tonsillitis is a protective agent against acute streptococcal infection of the lymphoid tissue of the throat.

A. R. HOLLENDER, M.D.

## NECK

Thomson Sir St. C. Dundas Grant Sir J. A. D. Kels W. H. Discussion on Spasm of the Larynx. *B. J. M. J. 1923 7*

Sir St. Clair Thomson draws attention to the fact that spasm of the larynx is a spasm of the glottis. The causes of spasm of the glottis include local irritation, irritation of the motor nerves, central

nerve lesions and hysterical and functional disorders

Neuroses of sensation are of two types (1) anaesthesia and (2) hyperaesthesia. Sensation may be diminished by

1 Old age anaemia drugs such as cocaine orthoform menthol morphine chloroform and other anaesthetics and general affections such as influenza typhus cholera and pneumonia

2 Affections of the nerve trunks as in the peripheral neuritis of diphtheria and conditions involving the superior laryngeal nerve such as paralysis of the laryngeal muscles

3 Central affections such as the bulbar lesions of locomotor ataxia general paralysis glossolaryngeal paralysis syringomyelia multiple sclerosis hemorrhagic tumors and gummata of the medulla

All of these conditions lead to spasm by lowering the sensation by which the glottis is protected

Hyperaesthesia causes spasm by sending an exaggerated warning to the medulla. Among the causes are abnormal conditions of the general nervous system (such as is present in anemia neurasthenia fatigue dyspepsia and alcoholism) acute and chronic laryngitis and pruritus. Reflex causes may be traced to the tonsils nose ears teeth or thyroid gland

Neuroses of motion are caused by lesions which irritate the recurrent laryngeal nerve in the neck. These include neuritis tumors cancerous growths etc

The most common central lesion is that due to locomotor ataxia

Sir St. Clair describes the phenomena of glottic spasm and discusses the difference between adduction spasm and abduction paresis

In the immediate treatment inhalations of chloroform or nitrate of amyl are effective. Between attacks the condition responsible should be sought. All causes of irritation should be avoided. In functional cases bromides are beneficial. Attention to the general condition is of great importance

Sir James Dundas Grant believes that in adults the chief factor responsible for glottic spasm is overaction of the centers in the bulb of which the adductor centers appear to be the stronger. In children (with laryngeal muscle trismus) the trouble is due to hyperexcitability of the cortical centers for adduction of the cords

Laryngismus stridulus he attributes to a deficiency of calcium in the blood

Krisch draws attention to the fact that the muscles which close the airway in the larynx are stronger than those which open it and that therefore the tendency of any nerve irritation direct or reflex is to cause closure. Attacks of glottic spasm are produced more easily in children than in adults because in children the excitability of the reflex mechanism is greater. It occurs more frequently during the night than in the day because at night the control of the cerebro-cortical centers is suppressed. Of the general morbid conditions favoring glottic spasm

rickets appears to be the most important. It has been suggested that the laryngeal attacks are analogous to asthma. Otto M. Roth M.D.

**Soerensen J.** The Present Technique of Laryngectomy and the Various Methods Used for This Operation (Ueber den heutigen Stand der Technik der Kehlkopfexstirpation nebst einer Beschreibung dieser Operation angewandt nach der Methode von Zenker). *Monatsschrift für Hals-, Nasen- und Ohrenheilkunde* 1923, 11: 161

Soerensen reviews the history of laryngectomy from the first operation performed successfully by Billroth in 1873. Considerable improvement in the technique of this procedure in the course of fifty years has resulted in a very decided decrease in the mortality. The formerly attempted union of the tracheal stump with the pharynx has been abandoned and as a result the condition of the wound has been considerably improved because the primary suture of the pharynx which usually holds firmly without tension prevents the inflow of saliva and food.

The majority of German surgeons and many others begin the extirpation of the larynx from above and divide the trachea only after the toilet of the pharynx and wound has been completed. The late opening of the air passages is an important factor in decreasing the danger of wound infection. In Germany most surgeons prefer local anaesthesia but in other countries chloroform anaesthesia is often chosen.

Divided glands if they are not very large are removed with the larynx. In the author's opinion even cases with extensive glandular metastases should be operated upon.

The after treatment is of the greatest importance. The patient should be gotten out of bed within a few days after operation and should be given a concentrated diet through a tube introduced through the nose. Respiratory exercises and cardiac stimulants are also indicated. (V. TAPPEINER, Z.)

**Knaus H.** The Relationship Between the Thyroid Gland and the Female Genitals (Zur Korrelation zwischen Thyroid und weiblichen Genitalen). *Monatsschrift für Hals-, Nasen- und Ohrenheilkunde* 1923, 11: 169

The thyrotoxicom performed at the Graz clinic in 1915 and 1916 followed by abnormal uterine bleeding. Knaus attributes this to a temporary hypothyroidism acting upon the ovaries.

KOLB (Z)

**Dunham H. K.** X-Ray Therapy in Toxic Hyperthyroidism. *Ohio State Medical Journal* 1923, 19: 713

In the author's opinion the X-ray properly used will cure every case of hyperthyroidism that surgery can cure and others in addition. In a few cases better results can be obtained by the use of both methods but all cases of pressure from the tumor should be treated surgically. Relapses after X-ray treatment are few and easily relieved. The length of time required for X-ray treatment the chief

object in that can be raised to it is usually erroneously estimated by comparing cases of different severity

The first and most important factor in the treatment is a correct diagnosis. The second requisite is a knowledge of the disease and the method used in the treatment. The third is the time and opportunity to care for the nervousness. The fourth is careful attention to the general health. The technique employed for thyroid treatment consists in exposing each lobe of the thyroid and the thymus separately, always protecting the larynx. The treatment is repeated every three weeks and controlled by the micturition rate. **ARTHUR L. SIEFFLER, M.D.**

# Significance of A Note on the Intestinal Theory of Exophthalmic Goiter. *Am. J. Surg.* 1933, 66

Exophthalmic goiter is invariably associated with definite hyperplasia of the thyroid cells. The severity of the condition is determined from a study of the pathological changes in the gland. Many of the signs and symptoms of the disease are the consequence of excessive thyroid secretion. The cause of the thyroid hyperplasia is uncertain.

The thyroid is intimately associated with the other glands of internal secretion and particularly with the adrenals. In exophthalmic goiter it appears that there is some common factor at work which causes overstimulation of both the thyroid and the adrenals. When this occurs a vicious circle is set up, the thyroid stimulating the adrenals and the adrenals in turn further stimulating the thyroid. Both of these glands have an inhibitory action on the pancreas, a fact which explains the changes in the carbohydrate metabolism and the fatty stools sometimes occurring.

The active principle of the thyroid gland is thyroxine, an iodine compound of tryptophane. Adrenalin is a compound based upon tyrosine. Both tryptophane and tyrosine are derived from the breakdown in the intestine of the protein molecule in which these amino acids occur. During normal metabolism considerable quantities result from the digestion of the protein in the food. A certain amount is absorbed into the blood and a certain amount is excreted in the bile into the bowel. The elimination is dependent upon the extent of bacterial activity; therefore, deficient bacterial activity in the intestine will result in excessive absorption of tryptophane and tyrosine. The excretion is related to the breaking down of the body proteins by the cellular enzymes in such conditions as starvation and other states of increased destruction. It therefore appears possible that the supply of tryptophane explains in part at least the crisis in the toxic condition following loss of weight in cases of exophthalmic goiter.

The thyroid and the adrenal may then be viewed as factors which refer to the material in the shape of tryptophane and tyrosine and build up that material into the finished products, thyroxine and

adrenalin. Normally each of these glands can respond to normal fluctuations in the supply of raw materials by increased production of stimulating products locally unless they are called into circulation by the stimulus of the other gland.

In the thyroid expansion can occur by hyperplasia of the secreting cells under the double stimulus of increased raw material and adrenal stimulation. The supply of raw material while varying somewhat according to diet is dependent mainly on the bacterial activity of the intestine. An excessive number of intestinal bacteria, especially in the small intestine, leads to a deficiency in the supply and deficient or altered bacterial activity is followed by an excessive supply and consequent hyperfunction of the glands. In the early stages of exophthalmic goiter there is an excess of adrenalin in the blood stream. The evidence in regard to thyroxine is less direct, but an increase in tryptophane cannot be followed by excessive production of thyroxine unless the iodine supply is adequate.

Iodine metabolism is not clearly understood. It appears, however, that the thyroid is almost alone in being able to fix iodine to a protein base, consequently a large amount of the iodine absorbed must be excreted unchanged. On the other hand, the thyroid appears capable of conserving iodine to a remarkable degree when the supply is deficient. Marine has been able to prevent goiter in school children by the administration of 2 gm. of sodium iodide a year. In this connection iodine Basedow's disease is of particular interest. This condition occurs in persons usually those with a simple goiter who are treated with iodine. A condition of thyrotoxicosis results which is very similar to exophthalmic goiter and often associated with exophthalmos. If the hypothesis advanced is correct, these persons are absorbing an excess of tryptophane from the bowel and the condition is potentially exophthalmic goiter. When the necessary iodine is supplied by treatment, the excess of tryptophane becomes operative.

There is little doubt that the ultimate treatment of exophthalmic goiter will be medical. As yet no strictly medical treatment of the disease has been devised, but medical measures are employed to treat special symptoms and to tide the patient over the crises in the course of the intoxication when immediate surgery would be disastrous.

Up to the present time surgical treatment based upon the one incontrovertible fact of overaction of the thyroid has been found the most satisfactory, but while it controls it does not cure.

**ARTHUR L. SIEFFLER, M.D.**

Holst, J. The Pathogenic Significance of the Changes in the Nervous System in Basedow's Disease. (Ueber die pathologische Bedeutung der Veränderungen im Nervensystem beim Basedow). *Arch. f. klin. med. Sci.* 1933, 136.

After discussing the causal connections and relations of exophthalmic goiter to diabetes

neurasthenia, traumatic neuroses and epilepsy the author reports the findings of his experimental work on exophthalmos.

In an attempt to produce exophthalmos by chronic irritation of the cervical sympathetic nerve cells two methods were used viz the injection of bovine tubercle bacilli and the insertion of sterile strand of silk into the cervical sympathetic ganglia of rabbits. The results of both methods were negative.

The effect of retrobulbar venous congestion on exophthalmos was next investigated. Ligation of the external jugular vein in rabbits caused marked congestion of the retrobulbar veins and varying degrees of exophthalmos but these disappeared with the establishment of collateral venous channels. The effect was the same whether the cervical sympathetic ganglion was extirpated or not. The injection of from 10 to 20 c cm of 1% into the right heart by way of an ear vein produced marked retrobulbar venous congestion and exophthalmos which persisted after death.

Holt concludes that the exophthalmos of Basedow disease is due to venous congestion in the retrobulbar veins and not to contraction of Muller's muscle caused by stimulation of the cervical sympathetic nerve fibers.

WILLIAM P. VAN WAGEN, M.D.

Arnold E. R. Bowers, L. G. and Huston, H. R.  
Surgery of the Thyroid. *Oh. St. Med. J.* 923  
77

After classifying the various types of goiter the authors offer suggestions worthy of consideration for what they term "bad risk cases." As such cases they classify neglected adenoma with hyperthyroidism and Graves disease. Persons with goiter who are bad risks should be prepared for operation with care. If sent to bed in a hospital for a few days or a few weeks with alleviation of anxiety, worry and fear as far as possible and no mention of operation is the ideal preparation. They should be given

as generously as possible a low protein diet and large quantities of fluids. Glucose and bicarbonate of soda should be administered until the urine is alkaline and ice caps applied to the goiter and precordial regions. In some cases transfusion may be indicated. Digitalis should be given until a physiological effect is produced. Occasionally radium may be applied to part of one lobe. Bromides and morphine are of decided value when physiological rest has been induced.

The operative treatment of choice is ligation done in the patient's room under local anesthesia. In the cases of very nervous patients gas oxygen may be used. The authors employ for all ligations and for nerve blocking in thyroidectomy 1 per cent procaine freshly dissolved in normal salt solution without adrenalin. Operation is stopped at any stage and the wound packed with gauze if the patient shows serious signs of depression and if his margin of safety is endangered. Hemostats may be left on temporarily, ligation or removal being done the same evening.

At the end of from twenty-four to forty-eight hours the wound is closed under local anesthesia. With regard to the postoperative care the authors emphasize the importance of supplying large quantities of fluid, often as much as 5,000 c cm daily. Absolute rest is induced by the use of codeine and heroin. Digitalis may be used for stimulation when necessary. Hyperpyrexia is treated by the use of cold. This occurs less often following local anesthesia than after general anesthesia. When tracheitis develops inhalations of steam bearing tincture of benzoin give relief. The occurrence of postoperative tetany, while rare, is combated by the administration of from 10 to 30 gr of calcium lactate in a glass of distilled water every hour until the spasms have subsided and subsequently every two hours for three to six days and then before meals and at bedtime for a month.

ARTHUR L. SHREFFLER, M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Friedman I J The Roentgen Signs of Increased Intracranial Pressure *Am J Surg* 1933 437

The acute type of increased intracranial pressure follows trauma and is manifested roentgenologically by areas of increased illumination with intervening spaces of normal density. This picture occurs in 90 per cent of cases of concussion and 80 per cent of cases of fracture due to trauma. When a small epidural blood vessel is ruptured the resulting hæmatoma is recorded in the roentgenogram as an area of decreased density.

The subacute type of increased intracranial pressure is seen at a more remote date from the injury and presents a similar but less distinct roentgenological appearance.

The chronic type which may be either congenital or acquired is manifested in the roentgenogram by circumscribed areas of osteoporosis of the inner table of the skull. If the congenital type is unaccompanied by untoward symptoms it may be ignored, but in the cases of unruly or mentally defective children the prognosis is unfavorable.

Roentgenograms demonstrating the congenital type of intracranial pressure may be of value in judging some of the criminal classes of insane.

Intracranial lesions including tumors rarely show the roentgen evidences of increased intracranial pressure. CHANES II H COCK MD

McConnell A A and Jefferson C Ventriculography in the Localization of Intracranial Tumors *Am J Surg* 1933 1709

McConnell describes an apparatus which is attached to the head to keep the brain needle in place during the aspiration of fluid and the introduction of air. In his fourteen cases he obtained satisfactory ventriculograms in nine and in four of the nine they made the diagnosis possible. In one of the four cases the condition was a tumor of the cerebellopontine angle in another a frontal lobe tumor and in the two others a lesion of the posterior horn.

In the five other cases the ventriculogram merely corroborated the clinical diagnosis. Two of McConnell's patients died after the examination and one during the introduction of the brain needle before the introduction of air.

Jefferson reports six cases with one death that of a hydrocephalic child. In only one case was a positive diagnosis made possible. In two cases the ventriculogram gave only corroborative evidence and in the two others was of no aid.

Both authors agree that the method should be used only after a most careful neurological examination has failed to localize the lesion and emphasize the indications and technique originally described by Dandy. LOUIS F DAVIS MD

## SPINAL CORD AND ITS COVERINGS

Radulescu A D Observations Regarding Six Cases of Compression of the Spinal Cord and the Result Following Laminectomy (Beträktningar öfver sex fall af ryggmärgs-kompression och resultat af ryggmärgsoperationer) *Lancet* 1933 74

CASE 1 A man 36 years of age was thrown down by an explosion. The accident was followed by a short period of unconsciousness and later by fatigue and pain in the back. Finally he was able to walk only in a bent-over position and with the aid of crutches. The findings at the end of a year were kyphosis of the thoracic vertebral column (particularly the fourth and fifth thoracic vertebrae), slight tenderness to pressure, weak patellar and Achilles reflexes, absence of abdominal wall and cremaster reflexes and disturbances of sensation in the lower extremities. The diagnosis was traumatic polyneuritis.

Laminectomy of the fourth and fifth thoracic vertebrae was done under local anesthesia. The arch of the fifth vertebra was found to be greatly thickened. In the vertebral body of a section of the eighth rib 6 cm long was inserted. A complete cure resulted.

CASE 2 A man 50 years of age was burned under a fall gear, suffering an incomplete fracture of the eleventh and twelfth vertebrae. After a few months signs of compression were not detected. The patella and Babin's reflexes were strongly positive. In the patient's right foot clonus was present. Skin reflexes were absent. Dysuria and constipation developed. The gut was treated by the use of two canes being necessary. Kyphosis was present at the level of the twelfth thoracic vertebra. The diagnosis was traumatic polyneuritis.

Laminectomy of the tenth to twelfth thoracic vertebrae was done and the section of the eighth rib taken from a rib. The patient is able to walk without a cane.

CASE 3 A 35-year-old man suffered for about five months with increasing pain in the lower extremities. Ultimate complete paralysis developed. Examination revealed atrophy of the muscles equinovarus position of the feet, absence of the patellar Achilles and plantar reflexes and disturbances in sensation. The diagnosis was compression of the spinal cord by a tumor.

Laminectomy from the twelfth thoracic to the second lumbar vertebrae exposed a large yellowish soft intradural tumor. This could be removed only partially. The histologic diagnosis was lipoma. The operation caused no improvement in the condition.

CASE 4 A man 20 years of age received a blow on the back from a log of wood. Immediately thereafter he was unable to move his legs. Later he developed urinary incontinence, large bed sores, and disturbances in sensation in the lower extremities. The diagnosis was compression of the cord by callus.

Laminectomy revealed the arch of the first lumbar vertebra sunken and thickened by masses of callus. The compressed cord was freed. Gradual improvement followed. The urinary incontinence ceased and the patient became able to walk, but his gait is like that in tabes.

CASE 5 A man 24 years of age had suffered for four years with pain in the back, an increasing sensation of heaviness in the limbs, and sensory disturbances. When he was seen by the author, examination revealed spastic paraparesis, a positive Babinski reaction, tenderness on pressure in the region of the fourth and fifth lumbar vertebrae, a positive Nunc-Apelt reaction of the spinal fluid, a positive Pandy reaction, and lymphocytosis. The roentgen ray picture and the Wassermann reaction were negative. The diagnosis was intradural tumor at the level of the ninth to eleventh dorsal vertebrae.

Laminectomy revealed at the level of the ninth thoracic vertebra a grayish red tumor with a pedicle which had its origin near a posterior root. This was removed. The histologic diagnosis was fibroma. The result was complete recovery except for slight anesthesia in the left leg.

CASE 6 A man 56 years of age was kicked by a horse. Examination revealed a distinct projection of the first thoracic vertebra, tenderness of the lower cervical vertebrae, complete paralysis of the right arm, edema, sensory disturbances, and restriction of active mobility of the lower extremities in the dorsal position. The X-ray revealed a fracture of the sixth and seventh cervical vertebrae.

Laminectomy was done from the sixth cervical to the first thoracic vertebra. The arch of the sixth cervical was found displaced laterally. The operation was followed by complete restoration of function and sensation in the arm.

The question as to whether traumatic spondylitis is due to a fissure of the vertebra or to a rarefying osteitis resulting from nutritional disturbance has not been decided. Case 1 and 2 suggest that the first theory is correct. The differential diagnosis from tuberculosis and syphilis of the vertebrae is often difficult. The treatment is generally conservative (a plaster of Paris cast supporting apparatus, etc.). The author recommends the operation which he performed successfully in two cases. The bridging of the operative defect with bone taken from a rib he regards as of special importance. The roentgen ray shows that the graft heals in well.

WOHLGEMUTH (Z)

### PERIPHERAL NERVES

Erlacher. Direct Neurotization of Paralyzed Muscles (*Die direkte Neurotisation gelähmter Muskeln*). *Ztsch f. Chir.* 1923, 41, 4.

When direct suture of large defects in nerves is impossible, neurotization may be of value in suitable cases. Direct implantation may consist in re-implanting the sectioned or injured nerve into the same muscle, the implantation of an alien motor nerve into the paralyzed muscle, or hyperneurotization in which a motor nerve is made to grow into a muscle still having its own nerve.

Muscular neurotization is indicated for example in cases of infantile paralysis in which a tendon is not available for a plastic operation and nerve material is difficult to obtain. In such cases either a transversely freshened paralyzed muscle may be sutured broadly to a transversely freshened healthy muscle, or a transversely freshened flap with its own good nerve supply may be split from a healthy muscle and implanted into the paralyzed muscle. Good results have been obtained in paralysis of the facial nerve.

BRUNNER (Z)



# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Berti G C Reclus Disease (C r i b t a l l s t u t  
della mal tta d Reclus) 1 i a l d c k 10 3  
11 729

Berti reports the macroscopic and microscopical findings in three cases of cystic degeneration of the breast (Reclus disease) and reviews the literature on the subject. The three main theories with regard to this disease are that it is of neoplastic origin that it is of inflammatory origin and that it is an involutary process. Other hypotheses are that it is of traumatic origin and that it is due to hypersecretion of the gland which leads to plugging of the normal duct followed by cystic degeneration to accommodate the accumulated excess fluid.

Of the three cases reported only one gave evidence of bilateral involvement in all of them the least involvement was complete but there were no axillary or clavicular metastases.

The histologic examination of the breast tissue showed that the acini varied from the embryonic type to those that had undergone various stages of cystic degeneration some were filled with cuboidal epithelium with the cells arranged concentrically to form lumina. The lumina varied in size according to the degree of involvement. They showed an inner layer of cylindrical cells of granular protoplasm and an outer layer of cuboidal epithelium. The larger type of cysts had epithelium of a stratified squamous nature.

In certain areas the layers of proliferating epithelium jutted into the lumen until they became segregated from their source of origin and underwent degenerative changes. As the cyst enlarged the epithelial lining thinned out and eventually disappeared. There was no evidence of epithelial proliferation beyond the basal membrane and no infiltration of the lymphatic channels or pericellular structures. In some areas the lactiferous ducts had undergone cystic changes. The interlobular connective tissue was fibrous and dense while the interacinous tissue was thin and meshlike.

On the basis of these findings the author rejects the view that the cystic changes are due to obliteration of the excretory canals communicating between the acini and ducts. In support of his conclusion he quotes Delbet who reported that following ligation of the lactiferous ducts in a lactating breast no cystic changes were found but eventually the gland atrophied. On the basis of the persistent absence of penetration of the basal layer and of involvement of the skin lymphatics and musculature Berti regards the disease as benign. He differentiates between the cystic change and adenoma of the mammary gland the latter presents a circumscribed and encapsulated mass while the former is a diffuse condition involving the entire gland. He believes that chronic inflammation is not the etiological factor since at the outset inflammatory processes affect primarily the parenchymatous structure while the intervening connective tissue which is much more resistant provides for reparative changes. No such picture occurs in Reclus disease of the breast.

Briefly Berti characterizes Reclus disease as merely a hyperplasia of the connective tissue supporting the gland. The cause is still unknown. Though he is convinced of the persistently benign tendency of the changes he admits the remote possibility of a superimposed malignancy the relationship being similar to that between a chronic gastric ulcer and subsequent carcinomatous development. He therefore advises total removal of the breast.

JAMES V RICE M.D.

Wiener F Resection of the Thoracic Wall in the Course of Carcinoma of the Breast with Special Consideration of the End Results (R e k t u n d r T h x w d i m V e r l f d s M n m C a n n m M t b e s o d e r B e n e c k s H i t u d D a u r r e i l l a t ) B e r l i n M o C h 1923 c x i 4 9

In spite of the seemingly successful results of roentgenotherapy the author believes that in a given case of carcinoma of the breast which is adherent to the thoracic wall and pleura a radical operation with resection of the thoracic wall and immediate closure of the pleura is justifiable. In seven cases treated in this manner by von Fielesberg and in six treated by Fietz there was only one death and in six cases treated by Kuetner there was no operative mortality.

Two of Fietz's five patients who survived the operation were alive at the end of two and five years respectively but three died of recurrence eleven months one year and two years later. One of von Fielesberg's patients remained free from recurrence for three years and another for two years. Similar results were reported by others generally.

VIA W DEL (7)

## TRACHEA LUNGS AND PLEURA

Manson B H R P Pulmonary Amebiasis Lo c l 923 599

The author reports three cases of pulmonary infection with entamoeba histolytica in which the diagnosis was in doubt but immediate improvement followed treatment with metronidazole and other specific. In none of the cases was there evidence of liver involvement nor were the entamoeba found in

the stools. The diagnosis was arrived at by exclusion and strengthened by the remarkably prompt recovery following the institution of the usual treatment for dysentery of the *Entamoeba histolytica* type. The lesions were probably of the nature of consolidated bronchopneumonic nodules. This would explain the absence of amœbæ in the sputum.

Pulmonary amœbiasis may be secondary to a liver abscess which does not cause symptoms and therefore remains undiagnosed until after it ruptures through the diaphragm. The author reports two such cases.

Manson Bahr draws the following conclusions:

1. Pulmonary amœbiasis may develop independently of hepatic abscess.
2. The pulmonary condition may simulate bronchopneumonia or miliary tuberculosis.
3. The diagnosis is based upon the evidence of amœbiasis, leucocytosis and remarkable and lasting response to emetine and ipecacuanha.
4. Rupture of a hepatic abscess into the lung may occur without previous warning or the coexistence of hepatic symptoms.
5. The resulting pulmonary infection may closely resemble idiopathic disease of the lung such as tuberculosis or bronchiectasis in both its local signs and general effects.
6. The therapeutic action of emetine and ipecacuanha is as striking in this as in the first condition and as generally recognized is more rapid and lasting than in amœbic infections of the bowel.

7. Secondary infection of the respiratory tract with yeast fungi (*monilia*) may occur (so called bronchomoniliasis). This appears to be of little diagnostic importance and possibly is of no etiological importance.

RALPH B. BETTMAN, M.D.

### ESOPHAGUS AND MEDIASTINUM

Bufalini. Experimental Ligation of the Walls of the Esophagus (Sulla legatura parietale dell'esofago). *Arch. ital. di chir.* 1923, vii, 567.

In a series of experiments on rabbits the author tied off portions of the esophageal wall with silk ligatures including all of the layers but avoiding constriction of the lumen. The portion ligated resembled a small diverticulum. In all cases he found at necropsy a necrosis of the ligated tissues and a surrounding ulceration of the mucosa. In the cases in which the ligature was applied in the cervical region there was a marked and extensive peri-esophageal inflammation involving the surrounding cellular and adipose tissues. When the ligature was applied to the abdominal portion there was a limited reaction which led to a nodular fibrosis.

In view of these experimental findings Bufalini does not recommend a simple mass ligation for the treatment of small diverticula in the cervical and thoracic portions of the esophagus.

JAMES V. RICCI, M.D.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Morrow A S Recurrence of Inguinal Hernia  
After Operative Treatment J S 1943  
1 in 524

The operative cure of inguinal hernia requires sound surgical judgment in the selection of the cases and the operative procedure and considerable technical skill. A distinction should be made between the direct and indirect types and evidence of recurrence should be determined by examination rather than from the statements of the patient.

Recurrences are due to faulty selection of cases or of the type of operation, faulty technique or operative accidents.

Cases in which the condition is apt to recur regardless of the technique used are those in which the conjoined tendon is weak or absent and the abdominal wall is weak. Also cases of large oblique hernia of long standing which contain gut or omentum and frequently are complicated by sliding hernia.

No one operative procedure is applicable to all cases but removal of the sac alone will cure a certain number. Transplantation of the cord is usually advisable. In many cases of direct hernia suture of the inner leaf of the external oblique to Cooper's ligament and reinforcement by the transplantation of the rectus are necessary.

Technical errors include failure to separate the sac from the transversalis fascia thoroughly, leaving too large an opening for the cord, failure to remove the sac and failure to recognize an associated direct hernia; the so-called saddle bag type. Sutures are frequently put in so tight that they cause constriction, close approximation is all that is necessary. Interference with the nerve supply of the area is also common.

The most frequent causes of recurrence are suppurative (which is followed by recurrence in 30 per cent of the cases in which it develops), premature separation of the deep sutures due to improper tying, too early absorption of the sutures, strain from retching and vomiting following general anesthesia and slipping of the ligature from the neck of the sac. M L MASON M.D.

Silhol Localized Right Iliac Peritonitis With ut  
Appendicitis (Pentrite) Lise il q es dr tes  
appe drit 1 ch f o-b lgr de h 9 3  
x 700

The author reports three cases.

CASE 1 The patient was a woman 47 years of age who experienced a sudden attack of pain in the lower part of the abdomen with localized tenderness at McBurney's point and severe thirst, polyuria

and pain on micturition. A blood count showed 8000 leucocytes. At operation an inflammatory mass of omentum adherent to the caecum was removed. The appendix was not seen. The wound was closed without drainage. Recovery was uneventful.

CASE 2 The patient was a man 31 years of age. The condition began one year previously with intermittent attacks of abdominal pain localized in the right iliac fossa. When seen by the author the patient was cachectic and suffering from pulmonary tuberculosis, intermittent abdominal pain and localized tenderness at McBurney's point. The leucocytes numbered 25000. There was no fever. Operation revealed perforation at the base of the caecum with adhesions. The appendix appeared normal. No tuberculous lesion was noted. The patient died the night following the operation.

CASE 3 This case was that of a woman aged 23 years who had fever and low abdominal pain for two and one-half months following the birth of a child. In the right iliac fossa an extremely hard tumor was palpated. The leucocytes numbered 9000. Operation revealed an inflammatory mass consisting of omentum, the caecum and the right tube and ovary. The appendix and the loops of the small intestine contiguous to the principal lesion were some what similarly involved. The tube, ovary, omentum and appendix were removed. The patient recovered. Histological examination revealed tuberculous of the ovary, subacute salpingitis and a lymphoid reaction of the appendix which had become affected secondarily. WALTER C BURKET M.D.

Ashby H T The After Results of Abdominal  
Tuberculo in Children B I M J 9 3  
863

There are three main types of abdominal tuberculosis in children: (1) the plastic or cicatrizing form; (2) the type in which the mesenteric nodes are enlarged and palpable; (3) the ascitic type. These types are usually associated but the characteristic of one predominates.

The symptoms which are often insidious in character include loss of weight, anemia and enlargement of the abdomen. In some cases the onset is of the acute obstructive type and next to intussusception this is the most common cause of intestinal obstruction in children. The disease is most frequent at the age of 3 years.

While infection with the bovine bacillus through the drinking of the milk from infected cows is known to occur, there have been many cases in children who never had any but boiled milk. In Japan cows milk is never given to children but abdominal tuberculosis is very common. Moreover the condition is

found among the poor in large cities who do not use much milk and is infrequent among the better classes

As in all of the author's cases enlarged bronchial glands were found he is of the opinion that the bronchial infection was primary and the abdominal condition secondary

The prognosis is poor during the first and second years of life but improves as the age of the child increases If ascites is present the condition is usually greatly improved by laparotomy In a large percentage of the cases there are no important after effects No patient should be considered cured until he has been free from symptoms for a period of two years

WILLIAM J. PICKETT, M.D.

### GASTRO INTESTINAL TRACT

Willson H. S. A Study of 1 000 Consecutive Cases Presenting Gastro Intestinal Symptoms *J. Lancet* 1923 *lit* 512

On the basis of a review of 1 000 cases with gastro intestinal symptoms the author comes to the following conclusions

1 Although the history and findings may be obscure a very high percentage of persons with gastro intestinal symptoms are suffering from most commonly known ailments

2 So called neurasthenics should be carefully studied as usually there is an organic reason for their trouble

3 Chronic gall bladder and appendiceal conditions are more frequently the cause of indigestion or dyspepsia than are organic diseases of the stomach or duodenum

4 Chronic cholecystitis with hepatitis is frequent in young adults

5 Duodenal ulcer is the most frequent direct organic disease of the stomach and duodenum and is often difficult to differentiate from disease of the gall bladder

6 Gastro intestinal symptoms are caused reflexly by numerous diseases

7 A careful history and physical examination are of primary importance for a correct diagnosis

MARCUS H. HOBART, M.D.

Payne W. W. and Poulton E. P. Visceral Pain in the Upper Alimentary Tract *Q. J. Med.* 1923 53

In a study to determine the cause of pain in the upper abdomen the authors used a procedure suggested by Curlion and Hurst namely the introduction of a bag or balloon into the viscera and the recording of the pressure readings They employed the water system instead of air believing it to be more accurate The apparatus consisted of a bag rubber tubing a manometer and a syringe so adjusted that the contents of the system could be contained in the syringe at a certain pressure and level in the manometer After the bag had been accurately placed under fluoroscopic control it was filled with

water from the syringe and the pressure readings were made from the manometer The œsophagus stomach duodenum and jejunum were studied in this manner

The observations on the œsophagus revealed a more or less constant pressure in different locations œsophageal peristalsis was noted and its time and rate were recorded Burning sensations in the epigastrium were associated with an increase in the pressure in the lower œsophagus In the authors' opinion epigastric pain is due to tonic contractions in the lower part of the œsophagus A number of clinical cases are reported with pressure tracings to illustrate these points It was noted that with the pain there is an increase in the pressure the degree of pain being often in direct ratio to the rise in pressure in the water system

The observations made on the stomach were similar It was noted that with the generation of carbon dioxide gas there was a marked rise in the pressure associated with distress but with eructation the pressure immediately dropped and the distress disappeared

In a case of duodenal ulcer associated with pain there was a marked rise in the pressure Following eructation the pain was relieved and the pressure decreased

Observations on the pressure and contractions of the duodenum and jejunum were less conclusive

The authors summarize the article briefly as follows

1 Measurements were made of the pressure produced by peristaltic waves in the human œsophagus and their rate of progression

2 There is evidence that an œsophageal peristaltic wave ends by causing the cardia to contract and that during this process the cardia descends and probably invaginates itself into the stomach

3 The gastro-œsophageal anti-reflux mechanism has been substantiated in man

4 œsophageal pain or heart burn which is felt beneath the sternum or in the epigastric angle is usually associated with peristaltic movements of the œsophagus and often with a rise in the pressure

5 In one case anginal pain was not associated with œsophageal movements and in another was abolished after air was sucked into the stomach This is contrary to Verdon's hypothesis

6 During normal function the pressure in the stomach measures at the level of the liquid between 5 and 11 cm. of water In gastroptosis the pressure is higher in the upper part of the stomach than in the lower part in one case this difference was abolished when a belt was worn

7 Pain felt in the upper abdomen may be associated with movements in the pyloric part of the stomach the duodenum or the jejunum There is evidence that these parts may be affected alone or simultaneously and that there may or may not be simultaneous movements in the œsophagus causing heart burn

8 There is some evidence that visceral pain may be produced during relaxation of the muscular walls of the viscous

9 Just before eructation the pressure in the stomach may equal 30 cm of water

JOHN A WOLFER M D

Heidenhain L and Gruber G B Congenital Pyloric Stenosis in Adults A Study of the Relationship Between Gastric Diseases in Adults and Congenital Anomalies (Ueber die genitale Pylorusstenose bei Erwachsenen Eine Studie über die Zusammenhänge von Magenkrankheiten und congenitalen Erweichungen mit angeborenen Zuständen) *Dtsch Ztschr Chir* 923 1919 330

Heidenhain has come to the conclusion that pyloric stenosis of congenital origin is not uncommon in adults. He reports seven cases in which the clinical picture suggested pyloric stenosis but at autopsy only hypertrophy of the pyloric musculature with or without ulceration and erosion of the gastric wall was found. Obviously stenosis at the beginning of life may be overcome by compensatory hypertrophy of the gastric musculature and clinical symptoms develop only when compensation is interrupted or pyloric spasm occurs. Clinically the disease picture cannot be differentiated from that of ulcer of the stomach or duodenum especially since occult blood is sometimes found and ulcers may develop secondarily.

Heidenhain believes that the hypertrophic spastic stenosis of the pylorus in infants the congenital pyloric stenosis of adults and gastric ulcer belong to a similar complex in which the constitutional neurotic component is distinctly foremost. For every case of pyloric stenosis he advises resection of the pyloric ring by the Billroth I method. In congenital pyloric stenosis gastro-enterotomy does not lead to certain and lasting relief. In some cases the closure of the pylorus with gastro-enterostomy seems to cause a situation which induces hyperperistalsis and gastric pain. In one of two cases operated upon by Heidenhain in which Gruber made a careful anatomical and histologic examination and muscle measurements he discovered an abnormal muscle mass and the other an abnormal mass of mucous membrane. These he showed were independent of the associated ulcers. After a study of the form of pyloric stenosis—the Maier-Lander type in which there is narrowing of the muscular membrane canal due to a development of disturbance and the Hirschsprung type in which overdevelopment of the musculature of the sphincter stand in the foreground—Gruber concluded that in the first case the cause was an idiopathic hypertrophy of the muscle. He believes that the so-called congenital hypertrophy of the pylorus is a condition which possibly as the result of complications of a functional nature may seriously endanger life even in the adult but admits that this assumption is based on purely hypothetical grounds and requires confirmation by further observations.

V. V. KENWITZ (Z)

Bauer A H The Gastric Channel (Ueber die Magenastrie) *Dtsch med Wochenschr* 935 1917 73

In cases in which Bauer fixed the still-contracted stomach *in situ* by means of formalin infusions injected through a stomach tube soon after death he found a distinct gastric strait eleven times. In other experiments he found that ulcers caused by a combination of cauterization submucous injection of formalin and excision of mucous membrane showed distinct differences in the tendency to heal and that only the defect in the gastric strait developed into a typical ulcer. When the gastric strait was extirpated entirely the form and function of the stomach remained almost normal a passage of longitudinal folds appeared on the lesser curvature and a new gastric strait was formed. Roentgenograms showed that the function of the gastric strait in the dog is exactly the same as that described by Retzius. The passage of the bismuth along the lesser curvature could be easily followed.

Bauer demonstrated embryologically that the oblique fibers which determine the presence of the gastric channel are the remains of the muscular mechanism of rumination and that the gastric strait represents the previous œsophageal trough in the process of phylogenetic involution. The pathology of the gastric strait includes not only ulcer but also cardiospasm.

The question of importance for the surgeon is whether it might not be possible to extirpate the entire gastric strait with the ulcer.

NORDMAN (Z)

Duval P Roux J C and Moutier F Septicemia of the Gastric Walls and the Perigastric Lymphatics in Certain Chronic Gastroduodenal Ulcers (Die septische Perigastritis und die Lymphadenitis bei chronischen Ulceren des Magens und Duodenums) *Bull Mém Soc Chir* 1922 756

During the year 1922 four of the authors' patients in whom resection of gastroduodenal ulcers had been done by different methods died from local or general postoperative infection. In the first case in which death occurred on the fourth postoperative day a subphrenic abscess opened into the peritoneum the gastric sutures remaining intact. Histologic examination showed acute inflammation of the callous gastric ulcer and the presence of streptococci and diplococci in the submucosa and subperitoneal tissue.

In the second case in which death occurred on the twelfth day from a chronic infection of the lesser omentum the gastric sutures remaining intact the histologic findings were very similar to those in the first case.

In the third case death occurred on the fifteenth day from pseudo-lobar bronchopneumonia and abscess of the right lung purulent pleurisy and streptococcal abscess of the thigh but the field of the gastric operation was in good condition. His

tologically the callous ulcer showed acute inflammation and cultures from it yielded streptococci and diplobacilli.

In the fourth case there was superacute infection and histologic examination showed acute inflammation of the septic jejunal ulcer with streptococci and staphylococci.

The four cases therefore were septic ulcers of the stomach and in each case this acute septicity caused a local or general fatal infection.

The authors conclude that the septicity of gastro-duodenal ulcers—not the original septicity but that which may develop in the course of their evolution—is of great importance with regard to the treatment and the postoperative result. This subject has not received sufficient attention from surgeons as gastric ulcer is generally regarded as a trophic mixed lesion rather than a possible septic ulceration. The septicity which is present in certain cases and due usually to the streptococcus may cause unfavorable operative results and disruption of sutures. Septicity of the perigastric tissues even when the gastric tissues are aseptic explains perigastric abscesses developing about gastric sutures. Septicity of the ulcer itself or of the perigastric tissues and dissemination of the infection by the circulatory system following operative manipulations explain cases of postoperative septicæmia in which the operative area remains in good condition.

In the authors' opinion this septicity is more frequently the cause of failure in treatment than faulty operative technique and explains an unexpected break in a long series of cases similarly operated upon by the same surgeon with successful results.

W. A. BRENNAN

**Grekow J. J. Relationships Between Gastric Ulcer and Appendicitis** (Ulc et ul uni App l it) *J h d d R Ch A ng P tr g d 9 3*

The author has found that chronic appendicitis with pain in the epigastrium is always associated with per gastritis, periduodenitis and spasm and hypertrophy of the pylorus conditions which are of chief importance in the pathogenesis of the round gastric ulcer. The incidence of the association of appendicitis and gastric ulcer as given by numerous writers ranges from 20 to 95 per cent. In 183 cases of gastric ulcer Grekow found only one case without macroscopic changes in the appendix. In 100 cadavers he selected of the pathological anatomical institut of the Obuchov hospital found appendiceal changes in thirty-four. Of thirty cases of perigastritis or duodenitis twenty-five showed distinct changes in the appendix.

The mechanism of the production of gastric ulcer by the appendix the author sees chiefly in a spasm of the ileocecal valve. He believes that between this valve the pylorus and the cardia there must be a relationship similar to that between the anal sphincter and the urethra. Spasm of the ileocecal valve causes pyloric spasm and later this may lead

to disturbances of gastric function favoring ulceration.

When internal therapy fails in cases of gastric ulcer the author prefers conservative operations such as gastro-enterostomy with pyloric exclusion, pyloroplasty and excision of the pylorus. Removal of the diseased appendix is also desirable.

SCHACK (Z)

**Finhorn M. Further Experiences with Peptic Ulcers Accompanied by D-formites of the Viscus Visible by X Rays** *N York M J G M d Acc 1923 CX III 612*

Brief reference is made to six cases previously reported by the author in which far advanced peptic ulcer with niche formation was apparently cured by medical treatment as indicated by the clinical findings and the disappearance of the niche. The subsequent history of the five patients who have been traced indicates that they have remained cured to date.

As there is still doubt in the minds of many regarding the efficacy of medical treatment in advanced peptic ulcer further proof is given in this article by the report of thirteen additional cases: five of gastric ulcer and eight of duodenal ulcer in which a cure was effected by duodenal alimentation. Two of the cases are reported in detail and the histories of the others with regard to the symptoms, physical signs, findings of the string test and laboratory and roentgen findings are given in tabular form. The article includes also tracings of roentgenograms made before and after treatment.

While the author concedes that surgical intervention may be indicated in certain cases he is of the opinion that proper medical treatment will cause healing in the great majority.

ADOLPH HARTING M D

**Flanski N. I. Malignant Degeneration of Gastric Ulcers** (Ulc r m lgn Dege r t n d r Ma enge chur t) *J rh d d R Ch r A o g I etrog ad 9 3*

The author studied ninety-eight ulcers resected in Fedoroff's clinic. The sections examined were taken from different portions of the edge and floor of the ulcer. Carcinoma was found in six cases and atypical proliferation of the epithelium in twenty. These lesions had been diagnosed as ulcers both clinically and at operation.

SCHACK (Z)

**Morley J. The Relation of Gastric Ulcer to Carcinoma** *Lancet 1923 C 8 3*

Morley claims that the theory that gastric ulcer very commonly undergoes malignant degeneration owes much of its authority to the reports emanating from the Mayo Clinic. He quotes W. J. Mayo as stating in 1907 that in 54 per cent of sixty-nine cases of cancer of the stomach operated upon in 1905 by himself and C. H. Mayo the clinical histories and pathologic examinations of removed specimens made it certain that the cancer had its origin in ulcer.

Wilson and MacCarty in 1909 reported 109 (71 per cent) of a series of 153 proved cancers of the stomach arising on an ulcer basis. MacCarty has observed that most chronic gastric ulcers larger than 2 cm in diameter are malignant.

Among British writers Sherren reports that four teen (25 per cent) of a total of fifty seven cases in which gastrectomy was done for cancer showed definite microscopic evidence that the cancer began at the edge of a simple chronic ulcer. Moynihan states that 18.5 per cent of his excised chronic ulcers without gross evidence of malignancy show early cancer at the ulcer margin. Patterson regards the matter as not proved.

The author analyzes his own series of 116 cases to determine the tendency of chronic gastric ulcer to give rise to cancer. He divides them into three groups as follows:

**Group 1.** Fifty cases of chronic gastric ulcer removed by partial gastrectomy or excision. At operation all of these were regarded as cases of simple ulcer. Microscopic examinations showed five of the ulcers (10 per cent) to be definitely malignant. Of the remaining forty five six showed irregularity of the glandular epithelium at the ulcer edge which would be regarded by some pathologists as a precancerous change or early malignancy. In Morley's opinion the first early indisputable evidence of malignancy is the transgression of glandular epithelium across the muscularis. The remaining forty cases were cases of simple chronic ulcer.

**Group 2.** A small series of gastric ulcers in which the ulcer was left intact and simple gastroenterostomy was done. The average duration of the ulcer symptoms was 9.3 years. Two of the patients died from causes other than malignancy. The remaining eight are alive and well from one to ten years after the operation.

**Group 3.** Fifty six cases of clinically proved cancer of the stomach with forty six operative diagnoses. In fifty two cases there was no history of indigestion before the onset of the cancer and in only three was there a history suggesting ulcer. However the history depends largely on the examining physician and the patience with which it is elicited.

As demonstrated that cancer does not often arise from ulcer Morley compares the average duration of the gastric symptoms in the two series of proved ulcer and cancer cases. In the proved cases of gastric cancer the average duration of symptoms was 12.7 months while in the forty five cases of simple ulcer it was 10.3 years. In Group 1 the average age of onset in the ulcer cases was 32.8 years while in the cancer cases it was 49.9 years. Morley believes that though the possibility of the development of cancer in the edge of a chronic stomach ulcer cannot be denied his study indicates that this does not occur nearly as frequently as is generally believed. He concludes that it is the ulcer simulating cancer which is responsible for the belief in the cancerous degeneration of simple gastric ulcers.

JOHN W. NOZUM, M.D.

Wolkoff K. W. The Surgical Treatment of Gastric Ulcer. 281 Cases. (De chirurgische Behandlung des Ulcus ventriculi. 81 Fälle. Vorgehandelt. Chir. R. 1. Kong. P. 1. grad. 1913.)

This report is based upon operations performed during the years 1918 to 1922 at the District Hospital of Jadrin in the Tschuwash region. The subjects were Mohammedans of a very low cultural type. Of 386 operations on the stomach 281 were done for gastric ulcer and of these 236 (84 per cent) were performed on males and forty five (16 per cent) on females. In every instance the operation was a gastro-enterostomy without exclusion of the pylorus.

There were four deaths a mortality of only 1.4 per cent. Suppuration of the wound occurred in twenty nine cases (10 per cent) and in four of these a hernia developed later. Hematemesis occurred in nineteen cases (7 per cent). In five cases (1.8 per cent) there was acute postoperative dilatation of the stomach. This was relieved by gastric lavage and elevation of the foot of the bed. In six cases (2.1 per cent) postoperative pneumonia developed. Eight patients were operated upon a second time five for stenosis of the stomach and three for vicious circle; the latter condition was relieved by the enteric anastomosis of Braun. One patient who was operated upon a third time for stenosis and adhesions died of peritonitis. Recurrences developed in 12.3 per cent of the cases.

The number of cases operated upon annually has increased from 35 in 1918 to 121 in 1922 was three times that of 1918. SCHLAACK (Z).

Schlaack W. and Knew P. G. Ulcer of the Stomach and Duodenum and Their Operative Treatment. According to the Report of the Surgical Faculty Clinic of the Medical Institute of Petrograd. (D. S. U. I. tr. kul. i. d. o. d. e. i. p. e. t. B. h. d. g. n. h. d. n. i. g. a. b. n. d. r. h. r. u. g. i. c. h. e. F. k. u. l. t. i. K. l. i. n. i. k. d. e. s. m. e. d. i. c. i. n. i. Institut. zu Petrograd.) V. e. k. n. d. l. d. R. Ch. A. o. g. P. e. t. g. a. d. 19. 3.

The authors report on 111 cases of gastric ulcer and twenty five cases of duodenal ulcer. Gastroenterostomy was done in 129 resections in sixteen and a gastrostrophic operation in one. In the 136 cases there were thirty ten deaths a mortality of 9.5 per cent. The immediate mortality following gastroenterostomy was 6.9 per cent. This high death rate was due partly to the fact that many of the patients were in an extremely poor condition and partly to the fact that present conditions in Germany are very unfavorable for convalescence from gastric operations. The immediate causes of death were peritonitis in four cases, hemorrhage in two, pneumonia in two and cerebral plexy in one.

Most of the patients were between 30 and 50 years of age and 18 of them were males. The ulcer was on the lesser curvature in fifty two cases at the pylorus in thirty seven near the pylorus in ten and in the duodenum in twenty five. In five cases no ulcer was found. Forty eight cases showed

numerous adhesions fifteen a penetrating ulcer and four an hour glass constriction Multiple ulcers were found in five cases and four of these were fatal

In sixteen cases there were decided changes in the appendix and an appendectomy was performed in addition to the gastro enterostomy In ninety nine cases simple gastro-enterostomy was performed and in thirty gastro-enterostomy with exclusion of the pylorus A comparison of the permanent results revealed no particular advantage to be gained from exclusion of the pylorus

The authors believe that gastro enterotomy to be preferred to resection because of the higher immediate mortality following resection because the etiology of gastric and duodenal ulcer is still unknown and because resection is not a dependable preventive of recurrence and severe complications They always perform a resection however if there is any suggestion of malignant degeneration Whenever possible the physiological Billroth I method is employed

The roentgen ray examination is of aid in the diagnosis but in 27 per cent of the authors cases the findings at operation did not correspond with the results of the roentgen examination

SCHNACK (Z)

#### Horsley J S The Choice of Operation for Gastric and Duodenal Ulcers with Especial Reference to Pyloroplasty *J Am M Ass* 1923 lxx 9

In experiments on sixteen dogs recently reported by Mann and Williamson the duodenum was severed from the stomach and the end was closed The jejunum was then cut off lower down and its distal end sutured to the pyloric end of the stomach while its proximal end was sutured end to side to the ileum The operations were performed with the greatest care no clamps were used bleeding was carefully controlled and No. 00 chromic catgut was employed for suturing At necropsy ulcers of the subacute or chronic type which were similar in all respects to peptic ulcer in man were found in fourteen of the sixteen dogs The site of ulceration was usually in the intestine a short distance from the anastomosis of the stomach to the bowel These experiments were devised to divert the alkaline secretions which neutralize the acid stomach contents to a portion of the intestine at a distance from the point of emergence of the acid

From these findings it is obvious that all operations which divert the protective alkaline contents of the duodenum from the jejunal mucosa are undesirable

According to Darr approximately 8 per cent of gastro-enterostomies are followed by gastrojejunal ulcer Gastro-enterostomy is efficient only when gross mechanical obstruction is present at the pylorus It should never be performed in the absence of pyloric disease

There are many operations for the treatment of ulcer of the stomach or duodenum but the choice of

procedure must be made on the basis of the particular case The acute ulcers heal under medical treatment When pyloric obstruction is present a gastro enterostomy will cure in practically every case The Polya operation is a distinct advance in gastric surgery Foci of infection must receive proper attention The patient should be given careful instructions as to diet after the operation

Horsley first described his pyloroplasty four years ago It is indicated (1) in cases of small ulcers of the pylorus or duodenum without inflammatory exudate (2) after the local excision of a peptic ulcer in the body of the stomach and (3) in cases of narrow pyloric stenosis It is contraindicated by extensive adhesions

To date the author has performed fifty six pyloroplasties with three deaths Thirty two patients are complaint free Fourteen were greatly benefited Five required another operation A jejunal ulcer following pyloroplasty is unknown The essentials for successful end results after pyloroplasty are the elimination of foci of infection proper selection of cases for the operation and proper postoperative medical and surgical care

JOHN W. NUTTMAN M.D.

#### Deaver J B Gastro Enterostomy *Surg Gy & Obst* 1923 xxx 144

Anterior gastro enterostomy is today done very seldom in fact the only reason for attempting it is when because of existing disease the posterior method is impossible The chief objection to anterior gastro enterostomy as it is usually performed is the presence of a long loop of jejunum Not infrequently the proximal half of the long loop becomes water logged because of its inability to drive its contents forward

The motor and secretory functions of the stomach show marked changes following gastro enterostomy The occurrence of physical alkalization is shown by the constant presence of bile in the gastric contents after the formation of the new stoma The total gastric acidity is lowered about thirty points and the stomach empties more rapidly than normally

Except for cases of very small ulcers which can be excised without altering the normal motor function excision plus a gastro enterostomy is the procedure accepted by the majority of surgeons It is best to remove the ulcer with the surrounding indurated wall since an early carcinomatous ulcer is indistinguishable from a chronic cicatricial ulcer After gastro-enterostomy alone a peptic ulcer may perforate A definite percentage of marginal ulcers following gastro enterostomy are due to a lack of thoroughness in dealing with the initial lesion which remains as a focus of infection In cases of small duodenal ulcers the author excises the lesion or destroys it with the cautery and performs a gastro enterostomy Cases of large duodenal ulcers he treats by pyloroplasty including the points of infiltration and posterior gastro enterostomy

Gastro-enterostomy alone is indicated by



1 Cicatricial obstruction of the pylorus and extensive benign ulcerative disease of the pyloric end of the stomach when the patient's condition will not warrant a more extensive operation

2 Large ulcers involving much of the lesser curvature or the posterior wall of the stomach and associated with adhesions to the liver or pancreas

3 Ulcer of the cardiac end of the stomach not amenable to excision or destruction by the cautery

4 Gastric or duodenal ulcer with recurrent hemorrhage which forbids removal of the ulcer

5 Pyloric obstruction due to postoperative adhesions

6 Hour glass stomach in which the constriction is close to the pylorus

7 Extreme chronic gastric dilatation occurring in the absence of a patulous pylorus and associated with retentive

In cases of perforated ulcer excision of the ulcer followed by gastro-enterostomy is indicated as perforation does not always effect a cure and we can not be sure of the absence of latent carcinoma in the margins of the crater. The best results from gastro-enterostomy are expected in cicatricial pyloric stenosis and intense pylorospasm. Failures may be due to neglect in removing primary foci of infection on such as diseased gall bladder or appendix. A stoma is placed an obstruction of one of the jejunal limbs a kink or a spur or a stoma which is too small

The cooperation of the internist with the surgeon is necessary following operation as too frequently a good surgical result has been frustrated because of dietetic indiscretions of neglected patients

CARL D. VERBOW, M.D.

Clare, T. G. Gastrostomy: An Operation for the Cure of Chronic Ulcer of the Stomach  
Lancet 1913, c. 6

On the assumption that the chronicity of ulcer is due to contraction of the circular muscle fibers and the motility of the stomach the author has devised an operation to cut the circular muscle fibers leading to the ulcer thereby placing the ulcer at rest. He calls this operation gastromyotomy. The technique is as follows:

A curved incision about 4 in. long with its convexity downwards is made just below the ulcer well away from the ulcer induration. It is first carried through the serous coat which is separated from the muscular layer for about 4 in. Then the muscular layer is divided down to the mucous layer and carefully sutured to prevent injury to the mucous and leakage. Finally the serous coat is sutured to the layers being inverted into the muscular defect.

In the author's opinion the benefits derived from gastrostomy are due to the division of the circular muscle fibers rather than to drainage or alkalization of the gastric contents. For this reason in cases of pyloric ulcer he cuts the pyloric ring.

Clare has performed his operation in nine cases within the past eight months. While the time is still

too short to warrant conclusions as to the final results he states that practically all of the patients were relieved of their symptoms immediately and have remained symptom free.

JOHN A. WOLPER, M.D.

Hesse, E. Gastric Resection for Ulcer (Die Resektion des Magens bei Ulcus) Jahrbuch für Chirurgie 1913, 1, 2, 1913

In Hesse's hospital during a period of two and one half years there were 158 operations for gastric and duodenal ulcer 116 of which were gastro-enterostomies and forty two resections. In this article only the resections are discussed. Thirty six were resections of the stomach and six resections of the duodenum. In sixteen cases of wedge resection there were two deaths in two cases of circular resection of the fundus of the stomach there were no deaths in fifteen cases of resection by the Billroth II method there were two deaths and in nine cases of resection by the Billroth I method there was one death. The causes of death were peritonitis two cases postoperative shock two cases pneumonia one case. In the total number of forty two cases the mortality was therefore 11.9 per cent.

The mortality of gastro-enterostomy was formerly 13.8 per cent but since the use of local anesthesia it has been reduced to 3 per cent.

One objection raised to resection is its higher mortality as compared with that of gastro-enterostomy. Hesse like Federoff has found the difference slight. Among the advantages of resection is that it prevents severe complications such as hemorrhage perforation of the ulcer and malignant degeneration. Its chief advantage however is that it gives considerably better lasting results. A recurrence develops in not less than 50 per cent of cases treated by gastro-enterostomy (Clairmont 52 per cent, Moynihan and Mayo 50 per cent) but occurs at the most in only 10 to 15 per cent of those treated by resection. After resection the danger of peptic jejunal ulcer is less than after gastro-enterostomy and after a Billroth I operation it is entirely absent.

Wedge resection of the gastro-enterostomy is to be condemned. Cross resection of the stomach has the disadvantage that it does not remove the pylorus consequently resection by the Billroth method is to be preferred especially the Billroth I method.

Resection is only indicated in cases of high ulcers of the cardiac end and those of very weak patients in poor general condition as a means of the emergency operation in Russia today. See K. (Z).

Lewy, John R. Resection of the Stomach for Chronic Gastric and Duodenal Ulcer  
Surgery 1913, 1, 2, 1913

Simple gastro-enterostomy which up to a few years ago was considered the best operative procedure in gastric and duodenal ulcers does not give ideal permanent results. In many cases the condi-

tion is worse following this treatment than it was previously. Resection plus gastro enterostomy seems to offer a more favorable outlook than gastro enterostomy with or without pyloric exclusion. Radical resection of all pyloric or duodenal ulcers with removal of the antrum tends to prevent later complications such as hemorrhage perforation and malignant degeneration and removes the acid producing part of the stomach the antrum whose hormone stimulates the fundic glands and is an important factor in the production of recurrent ulcers.

Resection of the stomach may be performed by a Billroth I or Billroth II technique depending upon the exigencies of the case. The Billroth I is the more ideal procedure as it tends to establish normal relationships. Haberer's modification of this technique as followed by Lewisoohn is described in detail. Adhesions to the pancreas can be easily dealt with by cauterization or by splitting the capsule if the latter can be repaired afterward. If the Billroth II technique is used a posterior suture or a Murphy button may be employed.

In ten of a series of twelve cases the Billroth II method was used and in two the Billroth I technique. Ten patients are perfectly well one has developed stenosis of the stomach following a button gastro enterostomy and one died from peritonitis. The acid values averaged 37 free and 59 total before operation and 5.4 free and 28 total afterward.

M. L. MASOV, M.D.

Isaac Kruger, K. The Dietetic After Treatment of Patients Operated upon for Gastric Ulcer (Dietetic Nachbehandlung nach der Operation bei Magengeschwüren). Ztschr. f. klin. Med. 93: 39.

The operation for gastric ulcer constitutes only one stage in the treatment of the disease as the dietetic after treatment is of the greatest importance. There are three stages in the after treatment in the first which includes the first fourteen days following the operation fluid diet should be given and in the second which includes the succeeding six weeks a strict ulcer diet.

The author discusses the chemical and motor changes in the stomach following gastro enterostomy with or without exclusion of the pylorus resection according to the Billroth I or II methods and transverse resection.

The article is supplemented by a number of dietetic tables. KALB (Z).

Lehmann, W. The Relationship Between the Stomach and the Intestine with Particular Reference to Intestinal Disturbances Coming on After Operations on the Stomach (Die Beziehung zwischen Magen und Darm mit besonderer Berücksichtigung der Störungen des Darmes nach Magenoperationen). Ztschr. f. klin. Med. 93: 433.

After a review of the literature on intestinal disturbances following abdominal and gastric operations the author discusses the relationship between

gastric acidity hyperacidity and motility and the intestine particularly the large intestine and the influence of these factors upon the bacterial flora of the colon and the nervous and internal secretory processes.

Of 692 patients subjected to gastro enterostomy resection or an exploratory laparotomy for gastric ulcer or carcinoma thirty four had postoperative diarrhea. The incidence of diarrhea was the same in the cases of carcinoma and ulcer but was greater following transverse resection (12 per cent) than following other gastric operations (5 per cent). The thirty four cases which included seven with dysentery like bloody stools and twenty seven with intestinal dyspepsia without bleeding are reported in detail. In some of the seven cases of dysenteric colitis the mucosanguinous diarrhea came on immediately after the operation and in others after a few days in three it was fatal. Lehmann attributes the condition in four cases to infection of the intestine by the colon bacillus due to lack of normal resistance. Diphtheria like ulcers were formed in three cases (without fatalities) true bacillary dysentery was present.

Of the twenty seven patients in the second group six died. In the two cases which came to autopsy no intestinal lesions were found. The cause of death was debility and complications such as internal hemorrhage thrombosis of the iliac veins pulmonary gangrene and purulent peritonitis. Seven patients who recovered showed complications in the lungs and pleura or conditions interfering with the healing of the wound (abscesses of the abdominal wall bursting of the sutures peritoneal irritation or infection) in these cases the diarrhea began with the complication and disappeared with recovery from it.

In the remaining 114 cases the complications which presumably were the cause of the diarrhea in the others were entirely absent. In the majority the diarrhea came on between the seventh and ninth days caused from three to six evacuations a day and lasted for from four to six days. In some cases it may have been caused by the war bread consumed at that time. In the others it was probably due to the alteration in the gastric motility caused by the operation.

The diarrheas may be divided into (1) the endogenous those due to irritation of the gastrointestinal tract resulting from dietary errors decomposition dyspepsia fermentive dyspepsia and possibly anaphylaxis and (2) the exogenous those due to abscesses peritonitis etc. In the diagnosis bacteriological chemical and microscopic examinations of the stools are of great importance. In some cases diarrhea may be due to the faulty choice of a loop of small intestine for the gastro enterostomy.

In cases of postoperative non specific bloody colitis the prognosis is very unfavorable. When this develops immediately after the operation the mortality is nearly 100 per cent but when it develops

after five or six days the outlook is better. In Goettingen the mortality in cases of functional intestinal dyspepsia was 17.5 per cent.

In the treatment of these diarrheas the well known procedures of internal medicine in the form of medication, intestinal irrigations and dietetic treatment are indicated. Lehmann emphasizes the importance of prophylaxis, that is the proper preparation of the patient for a gastric operation. Careful control of the diet after operation is of special importance in the cases of patients with a preoperative tendency to diarrhoea. In this connection von Noorden's dietary directions are quoted.

In conclusion the author discusses the cases in which a loop of intestine too low down has been used in performing the gastro-enterostomy. In order to avoid such a mistake the plica duodenojejunalis must be exposed since the proper loop of gut lies retroperitoneal to it. When possible a second gastro-enterostomy should be performed at the proper site.

MARNEDEL (Z)

**Dott N M. Anomalies of Intestinal Rotation. Their Embryology and Surgical Aspects. With a Report of Five Cases. B. I. J. S. 93, 351.**

The author precedes his discussion of anomalies of rotation by a description of the stages of normal rotation.

Rotation in the first stage is never interfered with except in extorsion of the cloaca. When the cloacal membrane ruptures the development of all structures formed from the primitive duct caudal to the vitello-intestinal duct is disturbed and rotation cannot occur.

In most of the cases of anomalies of rotation the interference occurred in the second stage. These may be grouped as follows:

**Group 1. Non rotation of the midgut loop.** The jejunum and ileum occupy the right hypochondriac, lumbar and iliac regions. The ileum may terminate in a left iliac caecum or in a midline pelvic caecum. The colon is on the left side of the abdomen. There is great variation in the secondary fixation usually it is imperfect particularly about the duodenum, mesentery caecum and ascending colon.

**Group 2. Reversed rotation of the midgut loop.** This condition is rare. A clockwise rotation through 90 degrees causes the transverse colon to cross behind the mesenteric artery close to its origin and the duodenum to cross the vessel anteriorly. Except for these anomalies the intestines occupy their proper position with reversal of the anterior and posterior surfaces.

**Group 3. Malrotation of the midgut loop.** All such cases are dependent upon the exact timing of the return of the viscera from the base of the cord to the abdomen. Often a small intestine passes in front of the vessels. Again the caecum may pass in front of the origin of the artery where it stops the mesentery is then short and only partially

adherent to the abdominal wall. Again the small intestine may remain entirely to the right of the artery.

Abnormal attachment and fixation due to anomalies of rotation in the second stage may cause no disturbance of function. Undue fixation may cause interference with motility, kinks or compression of the bowel. Lack of fixation may cause ptosis, torsion or volvulus. The incidence of such anomalies is three times as great in the male as in the female. As a rule the symptoms occur shortly after birth. Volvulus in the first few days of life is usually very extensive in later life it usually occurs at the ileocaecal segment.

In the third stage of rotation unduly early fixation of the caecum or failure of colonic elongation causes subhepatic and right lumbar positions. Deficient fixation results in the pelvic caecum or the mobile proximal colon.

The author reports three cases of volvulus due to anomalies of intestinal rotation: viz. (1) reversed rotation and volvulus of the ileocaecal segment in an old man; (2) non rotation and volvulus of the entire midgut section in a newborn child; (3) malrotation and volvulus of the entire small intestine in a newborn child. He reports also two similar cases from the literature and reviews the surgical pathology of extensive volvulus in infants.

The diagnosis of the anomalies of intestinal rotation is discussed from the standpoints of the abnormally situated appendix, diagnosis at operation and diagnosis in the presence of a lesion due to the anomaly.

Retrocolic and subhepatic appendicitis must be differentiated from biliary and renal conditions. Duodenal ulcer, left sided appendicitis (especially in the young), salpingitis on the left side, diverticulitis of the sigmoid and inflammatory complications due to a neoplasm. A distinctive colonic percussion note heard over the greater part of the left side of the abdomen but not on the right side may denote non rotation (Mayo). Complete transposition of the viscera is easily excluded by examination of the liver. The X-ray examination will sometimes be found of aid.

At operation it is important that abnormal dispositions should be recognized at whatever point the abdomen has been opened.

With regard to the diagnosis in the presence of a lesion consequent on the anomaly, such as abnormal adhesions, kinks and volvulus, the author states that in infants the condition must be differentiated from hypertrophic pyloric stenosis, the various forms of congenital atresia or stenosis of the intestines, pressure of a mesenteric cyst, a persistent Meckel's diverticulum or vitelline artery, volvulus of a loaded portion of the ileum and intussusception.

When intervention is necessary the details of operative procedure are dependent upon the anatomical conditions present. For extensive volvulus in the newborn treatment by operative reduction and fixation is suggested.

PHILIP J. MURPHY, M.D.

Eisen P Duodenal Regurgitation *J Radiol*  
1923 iv 388

Duodenal regurgitation into the stomach although referred to frequently in clinical literature appears to be comparatively rare from the roentgenological standpoint. When the author first observed it while examining the duodenal cap in a case of duodenal ulcer it occurred to him that it might be a contributing factor in gastric retention. Since then he has borne it in mind in the routine examination of the gastrointestinal tract in all types of cases and has looked for it especially at the three hour residue period or if the stomach was empty at the six hour period.

In a series of 190 cases it was noted only nine times. The conditions under which it was found were varied including duodenal obstruction, pyloric ulcer, gall stones and cases in which no organic lesion was demonstrable. The absence of regurgitation was especially noticeable in cases of diseased gall bladder in which from the patient's complaints it is to be expected and clinicians have detected it. It was found absent also in a recent case of cirrhosis of the liver in an alcohol addict in spite of the fact that there was a history of daily vomiting.

From the author's observations it seems probable that clinical observations of regurgitation may often be based on faulty inferences or caused by the methods used in making the examination such as the passing of the stomach or duodenal tube.

In conclusion Eisen states that duodenal regurgitation although undoubtedly occurring under normal conditions is nevertheless rarely observed by the roentgenologist and this discrepancy may throw some light on its clinical significance. Only in rare instances will it fully explain gastric retention and in most of these it is only a contributing factor associated with the delay in the opening of the pylorus and prolonged pyloric spasm or gastric atony.

ADOLPH HARTUNG M.D.

Kosyrew A Hernia of the Intestinal Wall (Ueber die Hernie der Darmwand) *Verhandl. d. R. Ch. Ges.*  
Petrograd 1923

During the last two years the author has operated upon twelve cases of hernia of the intestinal wall. The majority were femoral hernia and all of them were incarcerated. Almost without exception the coil of intestine and the incarcerated portion of the intestinal wall were filled with solid feces. The conclusion drawn are as follows:

1. The incidence of Richter's hernia in Russia is 4.8 to 5 per cent.

2. At operation these hernia are always found incarcerated.

3. Frequently bowel movement is not disturbed but this does not warrant delay of operation.

4. The hernial sac must be opened in the middle between the tip and the constriction at this point adhesions are usually absent.

5. Before the constricting ring is incised the incarcerated wall of the intestine must be clamped.

6. Following resection a lateral anastomosis is best.  
Busch (Z)

Burgess A H The Treatment of Obstruction of the Colon *Brit. M. J.* 1923 ii 547

Acute intestinal obstruction due to a lesion in the colon was present in 28.48 per cent of all cases of acute obstruction admitted to the Manchester Royal Infirmary in a period of ten years. Excluding cases of hernia and intussusception malignant growth was the cause of obstruction in 91.04 per cent. The location of the malignant growth was in the left half of the colon in 86.7 per cent, its site being in the order of frequency, the rectum, sigmoid colon, splenic flexure, caecum, transverse colon, descending colon and ascending colon. Therefore in any case of acute intestinal obstruction with the exception of hernia and intussusception there is a nine to one chance that the obstruction will be found in the colon and a six to one chance that it will be found in the left half of the colon.

The prime consideration in the treatment of all cases is the general condition. In desperate risks when the site of the obstruction is unknown a

blind caecostomy should be performed under local anaesthesia. A collapsed caecum warrants bringing out the first distended loop of small bowel encountered. In more favorable risks a paramedian exploratory incision may be made to determine the site of the obstruction, its mobility and the presence of metastases. The operation should then be terminated with a properly placed colostomy. Immediate resection of the colon and closure of the abdomen without drainage is never warranted. Ileocolostomy must not be done when the ileocaecal valve is patent unless an appendicostomy is done also.

WILLIAM F. VAN WAGENEN M.D.

Weinstein S The Roentgen Diagnosis of So Called Chronic Appendicitis (Roentgen diagnosis genannt in Appendicitis chronica) *Dtsch. M. W.* 1923 xl 757

The author rejects the technique proposed by Ehrlich which consists in giving the patient an ordinary meal one and one half hours after the barium meal and making a fluoroscopic examination six hours later. His reason is that by this method the possibility of judging the emptying of the stomach is limited. He uses the old method of examining after four hours without any subsequent food also for examination of the intestines as the residue in the ileum has slight or no significance when the emptying of the stomach is retarded.

When a residue in the ileum is demonstrable after eight hours with punctual emptying of the stomach a frequent cause of the stasis is a tuberculous process in the region of the ileocaecal valve. Simultaneous chronic intermittent pains in the ileocaecal region with slight rises in the temperature often suggest chronic appendicitis but frequently are an early symptom of a beginning tuberculosis. In such cases appendectomy does not cure.

HARMS (Z)

Faroy G and Baumann J: Manifestations of Inflammation of the Transverse Colon (Le mal testiculaire chronique du transverse). *Presse Médicale* 1939 3: 1320

Descriptions of segmental colitis only very rarely include the disturbance arising in the transverse colon. Because of the complexity of the symptoms of colitis it is difficult to distinguish those which arise from the part of the colon from those which arise in other segments.

In the authors' opinion there is a distinct entity of the transverse colitis, sometimes showing in the X-ray picture an anal of form appearance to which is peculiar to it and is located within the scope of the classical syndrome. Histologically the part of the large intestine is its most characteristic. The author calls it an inflammatory connective tissue and how this is autonomous.

Colitis appears to be the important factor in the genesis of many types of intestinal stasis. In the beginning it is accompanied only by the phenomena of excitability, irritability or slight atony, but later if the inflammatory lesion becomes marked alterations of the autonomic nervous system may appear and inaugurate a period of inter-neuritis.

The author's conclusion is that the symptoms due to inflammation of the transverse colon and especially the roentgenoscopic findings, especially under sero-control reveals not only the gravity of the transverse colitis but also its functional changes. These changes are accompanied by malabsorption.

The ultimate stage resulting from the extension of the inflammation of the colon is total intestinal failure and progressive diminution of vitality. In this state roentgenoscopy is the method of choice for examination. It shows the data of the extension of the transverse colitis and the nature of the other segment. The characteristic signs are dilatation and distention of the transverse colon. The elongation is permanent and independent of the palpation of the transverse colon a summary of the signs is such as the case of S. W. or M.

In many cases inflammation of the transverse colon is associated at the same time as inflammation in other segments such as appendicitis, phlebotomy, sigmoiditis etc. the symptoms are still better known domestic and in the motor disturbances. However inflammation of the transverse colon is a well defined morbid entity with a syndrome of its own dependence on the peculiar anatomical and physiological physiology of the segment of the large intestine.

The general treatment should be the same as that of infectious colitis. In the early stage due to adhesions from embolism or stricture and surgery is indicated. W. A. F.

Judd E S and Fould G S: Adenomyoma of the Ovary of the Sigmoid. *Surg Gynecol Obstet* 1933 57: 648

Since January 1, 1911, 5070 patients with fibromyoma of the uterus have been operated on at the Mayo Clinic. During the same period opera-

tions have been performed on 494 patients with adenomyoma. Four hundred and sixty-four of these growths were in the uterus, fallopian tubes, ovaries and uterine ligaments, fourteen in the recto sigmoid septum, six in the abdominal wall, five in the sigmoid, three in the ligament of the uterus, and one in the wall of the bladder. Of the five cases in which the growth was in the ovary one has been reported by Mähl and MacCarty.

Adenomyoma of the sigmoid like those elsewhere are most common between the ages of 35 and 45 years and in nulliparous women and those who have not borne children for some time. In fourteen cases nine from the literature and five from the Clinic in which the age was recorded it varied from 6 to 45 years, the average was 39 years.

A definite diagnosis is seldom made before operation. In most of the cases, however, there was a history of dull pain in the lower abdomen on the left side which was associated with constipation and which had been present for two or three years. The pain and the constipation were definitely more severe during the menstrual periods. At these times defecation was often painful and in some instances was associated with rectal prolapse. There was seldom any loss of weight. Cachexia was not observed. Occasionally there was acute or subacute intestinal obstruction. Two patients in the series had had colonostomies before coming to the Clinic.

Adenomyoma of the sigmoid is usually confused with cancer of the sigmoid. Before the occurrence of hemorrhage, loss of weight and cachexia it is difficult to distinguish it from early cancer. The length of the course of the disease is evidence against malignancy. Sometimes diverticulitis of the sigmoid resembles these tumors but the former occurs twice as often in the male as in the female. A typical roentgenogram will make a definite diagnosis possible.

The treatment of adenomyoma is surgical. As in other surgical conditions of the sigmoid colon, a temporary colostomy will be of no first and an opportunity afforded the patient to recover from the obstructive nature of the present. During the period of the development of the disease the patient is relieved by daily irrigation. Resection of the tumor may then be indicated as a conservative operation. The results of such resections are usually good.

Adenomyoma occurring in the sigmoid is similar to those occurring elsewhere in the body. It is gray, lobulated and fibrous. The adenomyoma consists of the tumor are glancing or when hemorrhagic, dark brown areas arising in a mass from a normal mucosa. Microscopically they consist of a stream of connective tissue of the embryonic type and smooth muscle fibers in varying proportion. The tumor contains glandular tissue of dilated crypts lined with cylindrical epithelium which closely resembles that of the endometrium. In certain sections there are evidences of hemorrhage both recent and old. Although

these tumors rarely show signs of malignancy on pathologic examination and should be distinguished from cancer by the regularity of the gland structure and the differentiation of the cells they have marked infiltrative characteristics. For this reason and because of their tendency to recur if they are not carefully removed they are considered clinically malignant locally. They do not tend to metastasize.

ALBERT J. SCHOLL, M.D.

Rosser, C. Proctologic Peculiarities of the Negro  
Am J S 3 1923 231 f5

Rosser reviews the observations of Balloch, Matas and Day with regard to pathological conditions in a sense peculiar to the negro—fibroid keloid, elephantiasis arabum and urethral stricture—and attempts to correlate certain anal and rectal peculiarities of the race with its known tendency to fibrous tissue hyperplasia.

To supply a pathological term for the racial tendencies in question which is broad enough to comprehend all manifestations to call attention to the element of racial heredity and to describe a process in which the definite characteristic growth by mesoblastic hyperplasia without direct involvement of surrounding tissues in response to injury, he suggests the term "fibroplastic diathesis."

Thirty-two cases of rectal stricture are reported and reference is made to hemorrhoid, anal vulvar elephantiasis and fibrous anal excrescences in the negro as illustration of the diathesis. The following conclusions are drawn:

1. The inherent ethnic predisposition to develop adult connective tissue—in other words the fibroplastic diathesis of the race—is in evidence in anal and rectal disease as in other conditions.

2. The two proctologic manifestations peculiar to the African—fibrous external growths and fibrous internal strictures—are both a result of this tendency.

Bonnwitz, O. R. von. A New Operation for Anal Rectal Fistula. *Monatsh. f. Chir.* 1923 1: 645

The operation described is used only in cases of simple non-complicated fistula.

After the parts have been made aseptic the bowels thoroughly emptied and cleansed and the sphincters dilated the fistula is divided by a clean cut and the diseased tract is dissected out. The parts are then cleansed again and sutured as a clean wound with care to approximate the edges smoothly.

After drying of the operative field and anus the special splint is wrapped with gauze; its funnel-shaped end is inserted well into the rectum and it is pulled down until it engages the internal sphincter. Gauze is then packed about the anus. When the internal sphincter contracts which it does in about two hours it encircles the flared end of the splint and thus the operative field is effectually sealed from contaminating secretions, even gases being excluded.

There will be no postoperative spasm of the sphincter or gas pain even if the bowels are not moved for ten days but an enema may be given after three days if necessary.

This splint is applicable to any operation about the anus and if the field is aseptic before the introduction of the tube it will remain so.

Two early failures were due to an unclean field before the introduction of the splint.

Healing by first intention reduces the amount of scar tissue to the minimum and thereby lessens the danger of subsequent cancer.

CARL R. STEINKE, M.D.

## LIVER GALL BLADDER PANCREAS AND SPLEEN

Chabrol, E. and Bédard, H. The Semeiological Value of Dissociated Icterus. (*La valeur sémiologique des ictères dissociés*). *Bull. et mém. Soc. méd. d'hop. de P.* 19 3 3 xxxi 60

In the case of a patient convalescing from syrochetal icterus free from jaundice and with normal pigmentary cholemia the urine had a positive Hay reaction for many weeks. Lemierre and Lèveque consider this a case of dissociated retention at the expense of the bile salts.

The determination of a dissociated icterus at the expense of the bile salts is difficult. In the examination of 400 normal and pathological urines a decrease in surface tension sufficiently definite to indicate bile salts never occurred without the presence of either urinary pigments or pigmentary cholemia. For the estimation of biliary salts the authors prefer stalgimetry to the Hay reaction.

Stalgimetry has shown that hepatic disease is present in 90 per cent of cases with a surface tension below 850 that the liver is clinically diseased in 60 per cent of those in which the surface tension is between 850 and 900 and that hepatic involvement is diagnosed in 30 per cent of those with a surface tension between 900 and 1000. Therefore when the surface tension is 850 or above the presence of biliary salts is to be presumed.

According to Brule dissociated icterus depends on a dissociated impermeability of the liver cells and the mechanism of the numerous icterus due to retention is explained by the theory of the pathogenesis of hepatitis. Besides a hepatic emunctory which allows the pigments and salts to filter selectively the factors upon which dissociated icterus depends include:

1. The blood tissue in which the bile salts may undergo transformation.

2. The kidneys. In these organs the pigments and the salts do not have the same threshold of diffusibility. Bile salts have extreme renal diffusibility. Bile pigments show a much higher concentration in the blood serum. Hence dissociated icterus at the expense of the bile salts may not be diagnosed on the basis of an examination of the urine alone. Direct study of pigmentary cholemia is indispensable for

proof of bil rub n retention which the urine does not always reflect

### 3 Bile pigment and salt formation

In contrast to Brul who holds that dissociated icterus is due to associated hepatic retention the authors maintain that the dissociation resides in the bile formation. Supporting this view are conclusions in obstructive of the bile passages from cancer of the pancreas or stone in the common duct and retention during catarrhal jaundice. In cancer of the pancreas the urine does not contain the normal 8 to 10 gm of bile salts excreted by the common duct into the intestine. Stigmometry and Mucoker's reaction show only 0.1 gm of bile salts. Hay's reaction is negative. The authors explain this by an enterohepatic circulation of the bile salts. The salts excreted by the common duct are absorbed in the intestine and return by the portal system to the liver where they are again eliminated. When the bile salts are diverted toward a cutaneous fistula the general blood circulation or the urine the reserves of the organism are rapidly depleted.

Bile obtained by surgical drainage of the common duct is very poor in salts. In catarrhal jaundice at the height of retention the urine contains abnormal bil pigments but the Hay reaction is doubtful or negative. By means of the duodenal tube it has been found that the bile is very poor in bile salts as compared with its pigment content.

The authors summarize their conclusions as follows:

Because of the great diffusibility of the salts saline choluria is manifested before pigmentary chyluria and the phenomenon is not explained by selective permeability of the liver cells for bil rub n.

Dissociated icterus is the expense of the pigments tends to appear in proportion to the degree of retention. This icterus is not increased by selective permeability of the liver cell. A break in the enterohepatic cycle of the salts supports the theory of dissociated bile formation. In icterus of hemolytic origin there is dissociated bile formation with increased production of pigments. In icterus from hepatic or common duct retention the bile salts are impoverished. This does not require dissociated bile formation for its explanation. Therefore dissociated icterus may not be considered as evidence of a dissociated retention in which the liver cell is the only etiological factor.

WALT R C BURKE M.D.

Thermann K H. The Levulose Test for Liver Efficiency and an Investigation of the Hepatic Condition in Pregnancy. *Q J M D* 973

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The levulose test for liver efficiency is based on the differences in the urine in normal and pathological cases following the oral administration of 100 gm of levulose. It depends upon the fact that levulose is unable to cause a rise in the blood sugar such as occurs after a dose of glucose because it is converted and stored more rapidly than glucose and

therefore does not appear in the circulation to the same extent.

The author applies the test by administering from 30 to 50 gm of levulose according to the patient's weight and then determining the blood sugar curve. If the height of the blood sugar curve exceeds 0.135 per cent some degree of liver inadequacy is presumed, and a high blood sugar value persisting at the end of from one and one half to two hours is regarded as strong evidence of such disorder.

In pathological conditions of the liver the enzyme or substance causing this conversion may be less active or so delayed in its action that instead of being rapidly converted into glycogen as is usually the case the levulose circulates in the blood and gives rise to the blood-sugar curve observed in pathological conditions of the liver.

The renal threshold for levulose is normally far lower than that for glucose and can be placed at about a blood sugar value of 0.12 per cent. A 100 per cent blood sugar is normal, an increase above this following the ingestion of levulose causes glycosuria.

In normal pregnancy there is no evidence that the liver is in any way affected. The renal threshold for all sugars is lowered in pregnancy and the threshold for levulose is practically non-existent.

A disturbance of liver function was found by the levulose test in one of two cases of eclampsia studied by the author.

CYRIL J CLAPPEL M.D.

Specht O. Further Investigations on the Effect of Various Drugs on the Secretion of Bile in Dogs with Fictitious (Waters) Liver Disease. *B J Surg* 1913 483

A critical review of the literature discloses the fact that many remedies called cholagogues are not cholagogues and that in general no distinct one is made between drugs which merely increase the flow of bile already present in the biliary passages and those which excite the liver cells to a greater secretion of bile. It is generally agreed that sodium salicylate has a strong effect on the secretion of bile but with regard to other therapeutic agents the reports differ markedly.

In his own investigations the author attempted to determine whether the bile secretion could be definitely increased by means of doses not injurious to health. An increased flow of bile already present in the biliary passages was ruled out by proper precautions. The results demonstrated that Carlsbad salts, oil of peppermint, Liebig's meat extract and agar agar had no effect on bile secretion and that sodium salicylate caused an increase only when it was given in doses which in the dog were injurious. On the other hand increased production of bile by the liver cells was caused by bile itself and by bile acids derived from other sources and in various combinations their action depended upon whether they were administered by mouth or intravenously. However, even these agents did not always have the same

effect as their action was dependent also upon the type of animal. Therefore the results of the author's investigations cannot be applied to man without further study.

Another fact established was that the secretion of bile and the excretion of urine are entirely independent of one another and that even the most marked variations in quantity, specific gravity and sodium chloride content of the urine are without influence on these factors in the bile. It was noted also that in the same animal the percentage of sodium chloride in the bile was always about the same and was not altered by the administration of larger quantities of salt.

HARRIS (Z)

**Olinschewitsch A. One Hundred and Six New Cases of Operation for Tropical Liver Abscesses in the Baku District 1910-1918.** (En Hundert und sechs neue Fälle von Operationen tropischer Leberabszesse im Bakischen Rayon in der Zeit 1910-1918.) *Verh. d. R. ss. Ch. Ak. g. Petrog.* 1923

In Transcaucasia liver abscesses are septic pyæmic complications of epidemic dysentery. Dysentery was demonstrated in all of 124 cases in which autopsy was performed and was indicated by the history in 67 per cent of the clinical cases. In Transcaucasia the bacteriological examination made in cases of dysentery is not sufficiently thorough. In the 106 cases reviewed amœbic dysentery was found in 17.9 per cent but in 81 per cent the etiology was uncertain. Liver abscesses are found most frequently in immigrated Russians. Nearly all of the subjects are males. The highest incidence of the condition is between the twentieth and fiftieth years of age. Liver abscesses occur throughout the year but are most common during the summer and fall.

In clinically positive cases Abderhalden's test was not positive (seven examinations). Leucocytosis is slight or absent. On bacteriological examination of the pus from liver abscesses amœbæ were found in 17.9 per cent, the colon bacillus in 15.1 per cent, staphylococcus aureus in 1 per cent and the Shiga Kruse bacillus in 3 per cent. In 67 per cent the pus was sterile.

Postmortem microscopic examination of the liver in cases of death from dysentery showed in many cases thrombosis of the small vessels and perivascular infiltrations and extravasations.

The cause of liver abscesses is dysentery and its sequelæ in the intestine. Of 124 bodies subjected to autopsy, 35.4 per cent showed multiple abscesses and 64.6 per cent showed solitary abscesses. Of the author's 106 clinical cases, twenty-four were cases of multiple abscesses.

Operation was followed by a cure in 58.4 per cent of the cases and by death in 41.6 per cent. In order to decrease the high mortality patients operated upon must be given specific treatment with emetin or vaccine. Alcoholism seems to predispose to dysentery; this fact explaining its high incidence among the Russians.

BRUSH (Z)

**Gallart Monec F. Pigmentary Cirrhosis (Contribution à l'étude de la cirrhose pigmentaire).** *Presse méd. Par.* 1923 xxx 334

The author discusses cirrhosis associated with melanoderma and a pigmentary infiltration of all the viscera, especially the liver. In America this condition has been called hæmochromatosis. It is claimed by many that the accompanying cirrhosis is of the hypertrophic type and that there is also a greater or less degree of hyperglycæmia with or without glycosuria. The author's purpose is to show that there are certain types which are not hypertrophic, not accompanied by either glycæmia or glycosuria and not found in adults.

A case reported was that of a 52 year old obese woman whose skin had been dark brown for several years and whose history was negative as regards syphilis and alcoholism. Four months before the patient was seen by the author she noted yellowing of the sclera and a progressive increase in the size of her abdomen. The bronzing of the skin was especially marked on the face, breasts, axillæ and genitals and on the backs of the hands. Ascites was present and the liver and spleen were enlarged. The border of the liver was hard and irregular. The urine was deeply colored and showed traces of albumin and a positive reaction for urobilin and bile salts but no pigments and no sugar. The blood sugar was 0.72 gm. per 100. The blood showed a slight lymphocytosis and a prolonged coagulation time. The Wassermann test was negative. A Weber test for blood in the faeces was positive. A few days after the patient entered the hospital she had a severe nasal hæmorrhage. Addison's disease was eliminated on account of the absence of vascular hypotension, gastro-intestinal symptoms, etc.

The condition remained stationary for three months except for the increasing ascites which ultimately necessitated an abdominal paracentesis. Death occurred as the result of internal hæmorrhage from a branch of the epigastric artery.

At autopsy the abdomen was found filled with uncoagulated blood. The liver was small, globular, irregular, hard and full of reddish brown granulations. On section circular bands of sclerotic material were seen surrounding the hepatic islands. The biliary tract was unaffected. Section revealed fatty degeneration and much new connective tissue formation. All of the hepatic cells showed degeneration. Histo-chemical examination for iron was negative (Turman reaction) but chemical examination showed 6.418 gm. of iron per 1000 (normal 0.15 gm.). The spleen was enlarged and hard and showed perivascular sclerosis. The kidneys were normal. The pancreas showed areas of sclerosis and 1.18 gm. of iron per 1000. The suprarenals were normal, iron 1.083 gm. per 1000. The heart exhibited fatty degeneration. The lungs were normal. The skin showed a large amount of pigment and many melaniferous cells in the dermis. This pigment gave negative histo-chemical reactions for iron but chemical analysis showed 0.49 gm. per 1000. The findings



indicated an atrophic cirrhosis with an excess of iron in the liver and other organs

According to von Recklinghausen hæmosiderin contains free iron while hæmofuchsin contains iron combined with protein. This hypothesis may explain why the tissues in this case contained hæmofuchsin or iron so closely combined with albuminoids that the reagents used could not isolate it. The ferrous pigmentation indicated only a disturbance of iron metabolism a function controlled not exclusively by the liver but also by other organs.

The theory is advanced that pigmented cirrhosis is a siderosis terminating a cirrhosis involving not only the liver but other organs as well.

KELLOGG SPEED MD

**Lobstein L.** A Report of a Surgically Treated Case of Haemorrhage of the Gall Bladder Which Endangered Life (Ein operierter Fall von lebensgefährlicher Blutung der Gallenblase). *Gyds* 1914 1 923 286

This case which ended in recovery is the only non fatal cases reported in the literature. The patient a woman 65 years old was brought to the hospital in an afebrile state with the symptoms of ileus a pulse of 120 and very severe pain in the right hypochondrium. The probable diagnosis was volvulus of the caecum and an adherent Meckel's diverticulum.

Laparotomy revealed blood in the abdominal cavity which came from a longitudinal wound 15 cm. long in an artery on the median surface of the gall bladder. The gall bladder was filled with five large angulated stones. After removal of the stones the wound was sutured and drainage was established. Recovery followed a biliary flow persisting for two weeks.

In the author's opinion the lesion and hæmorrhage were due to a decubitus ulcer.

Schneider and Huguennin have reported similar cases which were fatal. VON LÖBMEYER (Z)

**Funderlen.** The Indications For and Procedure in Gall Stone Operations (Die Indikationen und Ausführung der Gallensteinoperationen). 47. Sammelband der H. G. U. h. f. Ch. 93

Early operation is opposed by most internists but is favored by a constantly increasing number of surgeons. While the indications for surgery are not so urgent as in appendicitis and if possible operation should be avoided during an attack long-continued medical treatment of cholelithiasis is in general not advisable.

In the cases of young patients cholecystectomy is the treatment of choice and should be performed after the first attack. In later life surgical treatment is indicated after the failure of conservative methods. Early operation is urged because in the early stages of the condition the patient has better resistance than later the disease is still limited to the gall bladder and has not set up extensive complications. Changes in the heart lungs and kidneys are still able

to stand the strain and healing progresses under good condition.

Hydrops of the gall bladder presents a positive indication for surgical intervention and chronic cholecystitis and obstruction of the gall bladder are urgent indications since the benign picture may quickly change.

Internal treatment for icterus should not be continued longer than two weeks. The only contra-indication to operation is a poor general condition. The urine should be examined for urobilin and urobilinogen.

In cases of long standing icterus special precautions are necessary because of the danger of cholæmic hæmorrhage. In the prevention of such hæmorrhage the administration of calcium by mouth and of gelatin is indicated. Blood transfusion has proved especially valuable. The author has abandoned roentgen treatment as a prophylactic measure.

Most of the operations are carried out under anaesthesia begun with ethyl chloride but maintained with ether. In one case splanchnic anaesthesia and in several others lumbar anaesthesia was induced. As a rule a median incision is made with or without division of the rectus muscle. The gall bladder itself must be released from its subserous position the cystic duct carefully isolated and divided between clamps and the cystic artery ligated. The ligature may be led out through a drainage tube. In case of injury to the liver omit tamponade is indicated. The author does not approve of closure without drainage believing that even too much drainage is better than none. He removes the drain on the sixth day. Adhesions are formed whether drainage is established or not.

With regard to the choice of operation the author states that cystostomy is only an emergency procedure. It does not guard sufficiently against infection and recurrences but is often of value when the anatomical relations are difficult and the patient's strength is greatly reduced. The operation of choice is cholecystectomy. Following this operation the amount of pancreatic juice and bile secreted is slightly diminished but this does not cause any harm. The gastric disturbances are generally phenomena associated with the cholecystitis and are not relieved by the operation.

Choledochotomy is indicated when a diagnosis of occlusion of the common duct by stones is made and when concretions are discovered during cholecystectomy. In no case should operation be delayed longer than three weeks for the spontaneous discharge of the stone. The opening should be made if possible from the supraduodenal portion in difficult presentations from the cystic duct. Papillary stones should be mobilized after mobilization of the duodenum. Transduodenal choledochotomy is desirable only in cases of incarcerated papillary stones, as it is an operation with a high mortality. Drainage of the hepatic duct is a procedure not generally regarded as of value. If the papilla is easily penetrated or has been previously distended, and if the bile is fluid the

bile passages can be closed without resulting harm. If the walls are necrotic and the contents ichorous and granular drainage is indicated. Cholecystoduodenostomy is superfluous if the common duct is clear of obstruction but may be performed if there are stenoses in the lower portion of the papilla. However it gives no more protection against recurrence than drainage of the hepatic duct.

In the after care hydrotherapeutics may be of value. STETTNER (Z)

Zweifel E. St mulative Roentgen Irradiation of the Spleen (Zur Frage d r Milzre beahlu g)  
M ch n m d W hns hr 1923 lxx 67

The author recommends roentgen irradiation of the spleen in cases of menorrhagia in young women with normal genitalia. Cases of chlorosis and general weakness appear particularly suitable for this treatment. Of twenty one patients examined after such irradiation eleven are regarded as cured.

Zweifel believes that roentgen treatment of the spleen might be of value also in the treatment of older women as a preliminary to more radical treatment. WILLE (G)

### MISCELLANEOUS

P dobedowa N W. Abdominal Contusions and Subcutaneous Injuries of the Viscera (Zur Frage d r B hkontus ne u d subcutan n Ver let u g de E geweide) F st hr x 50 ja hr g  
Am t j b ls m p V t hnj a 19 2 11 33

In the Obuchow Hospital during the period from 1913 to 1920 there were 138 cases of abdominal contusions. In eighty three there were associated injuries of the abdominal organs. The internal injuries included rupture of the intestine in twenty seven cases (33 per cent) of the liver in twelve (14.8 per cent) of the spleen in six (7.4 per cent) of the kidneys in eight (22.2 per cent) of the bladder in nine (11.1 per cent) of the gall bladder in one (1 per cent) of the pancreas in one (1.2 per cent) and of several organs in nine (10.8 per cent).

Of the twenty seven patients with intestinal rupture twenty five were operated upon six were cured. Both of the cases not operated upon were fatal. A cure was obtained in three of the six cases operated upon within the first six hours of the injury in one of the three operated upon within the first six to twelve hours and in two of the nine operated upon within the first twelve to twenty four hours. Cases operated upon after twenty four hours were fatal.

In none of the cases with rupture of the liver was there any disease of the liver. Of the ten patients with this condition who were operated upon four were cured. The two who were not operated upon died. The method of haemostasis was usually omental tamponade.

Of the six patients with rupture of the spleen all were operated upon but only two were cured. Extirpation was done in four cases and omental tamponade in two.

Of the eighteen patients with rupture of the kidney only three were operated upon two were cured and one died. Of the thirteen patients who were not operated upon three died. On discharge from the hospital eight of the patients had no symptoms and two complained of pain in the lumbar region.

The two patients with rupture of the gall bladder and pancreas respectively were both operated upon but died.

The conclusions drawn are as follows.

In cases of abdominal contusions there is no sign by which injury of the viscera can be ruled out. A correct diagnosis can be made only from the complete syndrome. In every case of contusion of the abdominal wall in which an injury of the abdominal viscera (with the exception of the kidneys) is suspected immediate operation is indicated.

In cases of rupture of the intestines the prognosis is best when operation is performed during the first six hours.

In cases of rupture of the liver or spleen operation should be performed at the earliest possible moment. The most advantageous method of obtaining haemostasis is omental tamponade. The abdominal wound may be closed.

In the large majority of ruptures of the kidney healing will take place under conservative treatment. Operation is indicated only when there is danger of haemorrhage or when intraperitoneal rupture of the kidney progressive haemorrhage into the renal bed or infection of the renal parenchyma is suspected.

In rupture of the pancreas the abdominal cavity should be isolated with tampons. PERROW (Z)

R senburg A. The Differential Diagnosis of Surgical Abdominal Conditions and Tropical Malaria (Zur Differenzialdiagnose der chirurgischen Abdominalerkrankungen und Malaria tropica)  
De i che ned W ch s l 1923 lxx 8 t

The author reports two cases of malaria without typical temperature curves in which the symptoms suggested abdominal disease. The first patient had never been outside the environs of Berlin. On the basis of the blood examination a course of salvarsan treatment was instituted. After the patient's admission to the hospital he experienced a chill and his condition became markedly worse. Laparotomy was then performed on the basis of a diagnosis of peritonitis. Besides a large quantity of clear exudate the only findings were enlargement of the liver and spleen. Examination of the blood then disclosed the rings of plasmodium immutatum in the erythrocytes. An energetic course of quinine was given but the patient died. Autopsy showed cirrhosis of the liver and enlargement of the spleen but nothing abnormal in the gastro intestinal tract. The erythrocytes in the cerebral vessels were crowded with parasites.

The second patient contracted a malaria like affection during the war. As the Wassermann test

was positive salvarsan was given. During the course of the last injection the patient experienced a chill and later suffered pain along the costal margins and diarrhoea. As the pain did not cease with the fall in the temperature a diagnosis of perforated gastric ulcer was made. Immediate operation however was out of the question. The following day the patient showed unusual apathy and the abdomen was somewhat distended. Examination revealed enlargement of the liver and spleen and slight ascites. The urine contained a large quantity of albumin and the blood showed numerous crescents and tropical rings. Improvement followed a promptly instituted course of quinine.

Malaria has now been brought into Germany. The statistics show that 37 per cent of the cases of all types and 50 per cent of the cases of tropical malaria are those of persons who have never been outside the country. Diarrhoea indicates the dysenteric form of malaria tropica. The chills are often slight. The diagnosis can be easily confirmed by the blood picture. The red-cell count and the hemoglobin are decreased. A leucopenia, a relative increase in the large mononuclear leucocytes, the presence of poikilocytosis, anisocytosis and erythroblasts and inversion of the blood picture are also of diagnostic importance. Basophilic stippling of the red cells and a marked (more than 10 per cent) increase in the large mononuclear leucocytes suggest malaria even when no parasites are found. Tropical malaria closely resembles lues throughout its course.

COLLEY (2)

Colley R C. The Relation of Right Sided Abdominal Pain to Right Sided Disease. *J Am Med Ass* 93 LXXX, 900.

Pain in the right side of the abdomen is one of the common symptoms elicited in routine examinations. The gall bladder, pancreas, kidney, appendix or ovary is usually suspected. Lichty in reporting a series of 1,320 cases diagnosed as chronic appendicitis calls attention to the large number in which the same complaints were made after the operation.

He believes that not more than 60 per cent of these patients were suffering from chronic appendicitis. Colley finds 70 per cent of those operated upon for chronic appendicitis not benefited.

In a large percentage of cases chronic pain in the right side of the abdomen is due to defective fixation of the descending colon. Anatomists claim that from 20 to 40 per cent of all persons have a defective peritoneal fusion. Defective peritoneal fusion may result in:

1. Simple mobility of the caecum with normal fixation of the ascending colon.

2. A colon rotated over so far that it becomes attached to the anterior surface of the kidney, but the ascending colon and the caecum remain mobile.

3. A colon not rotated over farther than the anterior surface of the duodenum to which it becomes attached and from which it hangs as a dead weight, the ascending colon having a long mesentery.

4. An ascending colon not fused to the parietal peritoneum, the kidney and duodenum being entirely exposed.

Between these types there are of course an infinite number of gradations. Pain is produced by distention of a mobile prolapsed caecum or by traction on acquired membranes or bands. The majority of membranes are inflammatory in origin.

Colley reports the case of an 18-year-old girl whose chief complaint was chronic pain low down in the right iliac fossa. The pre-operative diagnosis was chronic appendicitis. At operation the ascending colon and caecum were found completely mobile. A strong membrane split in places into white fibrous bands extended downward diagonally from the parietal peritoneum to the middle of the ascending colon where it was attached and acted as a ligament. The appendix extended upward for 8 in. and its distal end was diseased. There was an early viceroptosis due primarily to the mobile caecum. The pain complained of for two and one-half years was due to the membrane attached to and pulling upon the ascending colon. It was most severe when the patient was up and about.

In a number of cases forced feeding and fattening will give relief. Surgical measures usually consist in shortening the mesentery of the caecum and ascending colon and fixing it by interrupted sutures to the posterolateral parietal peritoneum. When the caecum is greatly dilated and baggy, plication of its wall may be advisable. JONES W. NICHOLSON M.D.

Von Teubern. The Clinical Results of Pneumoperitoneum. (*Klinische Ergebnisse des Pneumoperitoneums*). *Fortschr d Geb d Med* 1914, 923, XXX, 215.

The author reports on ninety three cases examined by pneumoperitoneum. In twenty three the indication was a continuous unexplained abdominal pain. In these it was possible to examine the abdomen to recognize chronic perityphlitic which in some cases was not suspected clinically. The X-ray revealed a tumor like shadow in the right hypochondrium which could be easily distinguished from the shadows of the liver, kidney pelvis and genitalia. In several instances adhesions were found extending from the tumor to the abdominal wall.

In some of the cases the examination was made to determine the cause of a chronic icterus and in others to discover the origin of a palpable tumor in the region of the liver and gall bladder. The procedure revealed, among other conditions, cirrhosis of the liver, chronic liver atrophy, and the presence of inflammatory adhesions and liver and gall bladder tumors, but it did not permit any conclusions as to the cause of bile stasis or pathological adhesions between the liver, gall bladder and stomach. Gall stones could not be detected with certainty.

In cases of tumors of the pancreas, mesentery, kidneys, adrenals, and ovaries the examination was disappointing. The kidney is shown better by

pneumoradiography Tumors of the stomach intestines mesentery and pancreas could not always be made out distinctly

In cases in which hepatic syphilis was suspected pneumoperitoneum was usually of aid as it revealed the gross changes in the shape of the liver associated with this condition It was of value also in the diagnosis of liver abscess

In ten cases in which peritonitic adhesions or peritoneal tuberculosis was suspected the findings of the examination were positive

A constant therapeutic effect of pentoneum was not observed but in a number of cases chiefly those with vague abdominal pain due to adhesions the pain was alleviated or ceased after the examination.

In conclusion the author summarizes the X ray findings characteristic of a number of abdominal conditions and describes the best technique for pneumoperitoneum

WOHLER (Z)

Nather C and Ochsner E W A Retroperitoneal Operation for Subphrenic Abscess With the Report of Two Cases S J Gynec & Obst 1923 xxx ii 665

The authors divide the subdiaphragmatic space into four main divisions The right upper posterior space located on the posterolateral surface of the liver and between the liver and the diaphragm is described in particular detail as the subject of this article is subphrenic abscess complicating appendi-

citis The routes of infection and the diagnosis are discussed and two cases are reported

The technique of the retroperitoneal operation is described in detail The conclusions drawn are as follows

1 Careful exact clinical observation of persons whose condition does not return to normal following an attack of appendicitis will lead to an early diagnosis in a larger percentage of cases of complicating subphrenic abscess

2 In cases in which clinical observation does not lead to a diagnosis exploratory aspiration should be carried out retroperitoneally beneath the diaphragm

3 In cases of subphrenic abscess it is unnecessary and dangerous to use a method of drainage which exposes to infection the uninvolved pleura or peritoneum

4 Especially in cases of secondary subphrenic abscesses complicating appendicitis an operation is necessary which will drain abscesses in the subhepatic and suprahepatic spaces at the same time This combination occurs in 50 per cent of the cases The retroperitoneal operation meets the requirements

5 A coexisting empyema may be drained through the same incision without further rib resection

6 The retroperitoneal operation is surgically and anatomically the operation of choice for the drainage of subphrenic abscesses complicating appendicitis

FRANK C ROBINSON M D

# GYNECOLOGY

## UTERUS

**Tédenat Hemorrhage Due to Intra and Extra Uterine Fibroids (Hémorragies intra et extra utérines dues à des fibromes)** *Gaz. Méd. 1923*  
xii 321

The author reports a number of cases some of them his own and some of them those of other of servers in which severe bleeding was caused by submucous or subperitoneal growths. The most common types of bleeding were menorrhagia and metrorrhagia which appeared to be independent of the size of the fibroid. In some cases the growth was no larger than a berry. The bleeding was due either to neoplastic changes in the mucosa an active and benign hyperplasia or to atheromatous and fibrotic changes of the blood vessels of the uterine wall.

Tédenat reports also several cases of subserous fibroids with varicosities the rupture of which caused severe intra abdominal hemorrhage.

JAMES V. RICCI M.D.

**Fournier Hematoma of the Cervix and a Subtotal Hysterectomy; Neoplastic Degeneration of the Cervix Death One Year Later (Hématome du col et hystérectomie partielle; dégénérescence néoplasique du col; mort un an plus tard)** *Bull. Soc. Méd. 1923*  
xii 410

The case reported was that of a woman 64 years of age. The uterus was of the size and consistency characteristic of a five months pregnancy. The age of the patient was sufficient to exclude gestation otherwise it would have been extremely difficult to differentiate. At operation a supra vaginal hysterectomy was done instead of a total hysterectomy because of the difficulty in freeing the bladder fold from the uterine surface.

Section of the uterus revealed a collection of old blood and blood clots and a large submucous fibroid the size of an orange which completely obstructed the cervical canal at the internal os.

Six months after the operation a small tumor mass appeared on the cervical stump. Microscopic examination revealed epithelial malignancy. The patient refused radium treatment and died one year later.

JAMES V. RICCI M.D.

**Schwartz E. Injuries from Roentgen Treatment of Myomata and Hemorrhagic Metrorrhagia (Les lésions dues au traitement par rayons X des myomes et des hémorragies métrorhagiques)** *S. M. J. 1923*  
xv 393

The author reports injuries he observed in the roentgen treatment of twenty nine cases of myomata

and hemorrhagic metrorrhagias. The rays were applied at a single sitting to a small near field in three cases and to a large distant field in the others. Lehmann's table was used and one dorsal field and one abdominal field measuring 25 cm by 25 cm. were rayed simultaneously from two tubes at a focal distance of from 40 to 50 cm. The rays were applied for from eighty to one hundred and eighty minutes according to the apparatus used. Between 60 and 100 per cent of the skin erythema dose was applied to the skin which is far in excess of the ovarian dose.

In twelve cases severe vomiting vertigo and headache occurred during the treatment. In some cases the raying was followed by diarrhea and occasionally this was accompanied by severe intestinal tenesmus and the passage of mucus. Ten of the women were confined to bed for a considerable length of time. The author reports two cases with a sanguinous diarrhea. In one it was necessary to operate four months after the treatment for the removal of a sausage shaped tumor of the sigmoid flexure. The sanguinous mucoid diarrhea began after the radiation treatment and did not yield to medical or dietetic treatment. When the abdomen was opened very marked changes were found in the sigmoid over an extent of 12 cm. The intestinal wall was white firm and rigid and was covered by a hard nodular deposit. The mesentery was shrunk and the peritoneal covering of the true pelvis was white and thickened. A portion of the sigmoid 15 cm long was resected and the bowel united end to end. Healing was normal except for a discharging ulcer in the cutaneous wound. The latter was thought to be a late roentgen injury. The changes in the resected portions of the intestine consisted in an extraordinary thickening of the ulcerated mucosa of the wall and sclerosis of the connective tissue. The dose which caused the severe intestinal burn in this case was at the most 90 per cent of the skin erythema dose.

Schwartz concludes that his technique needs revision and that particularly in cases of myomata and metrorrhagias only the smallest effective dose should be employed.

MARKS (G)

**Stuhlfur F. Uterine Cyst (Uteruscyste)** *Zentralbl. f. Gynäk. 1923*  
li 167

This is a report of two cases of cyst of the uterus. The first was that of a married woman 29 years of age who had been sterile for three years. The menstrual periods had always been irregular occurring every eight to twelve weeks and lasting one to one and a half days. For the past year and a half the patient had had pain in the lower abdomen. At laparotomy the uterus was found to be the size

of two fists and was removed with the firmly adherent right adnexa. The left adnexa had been removed ten years previously.

The cervix presented no peculiarities and the uterine cavity was small. The greater part of the uterus consisted of a cyst larger than a fist which was separated from the uterine cavity by a thin layer of tissue. This cyst contained old black blood and was lined with a single layer of columnar epithelial cells.

The second case was that of a para II 38 years of age. By laparotomy the author removed a kidney-shaped tumor which had developed between the ligaments on the right side in the region of the internal os with its base the size of a silver dollar attached to the right posterior surface of the cervix. The uterus and adnexa were left. The extirpated tumor proved to be a fibromyoma showing retrogressive changes. In the center of the growth was a large cyst and in its lower pole were several small cysts lined with a single layer of epithelium and filled with mucus.

In the author's opinion the cyst in the first case developed from cell groups cut off from the already united müllerian ducts while the cysts in the second case had their origin in Gaertner's duct.

СЧИМТ (G)

Hunt V C. Cancer of the Uterus. *J. Lancet* 1923  
li 566

As cancer of the fundus of the uterus is not as malignant as cancer of the cervix its early treatment by hysterectomy gives better results. Cancer of the cervix is highly malignant and in more than 50 per cent of the cases is inoperable. It is most successfully treated by combining radiation with surgery. The outstanding sign is a blood-tinged vaginal discharge, this occurs in 92 per cent of the cases. Intermenstrual and postmenopausal bleeding or spotting should be regarded with suspicion and investigated without delay. When there is doubt regarding the presence of malignancy a specimen removed from the cervix for microscopic examination or a diagnostic curettage will dispel the uncertainty.

It is improbable that further development of the present accepted methods of treating cancer of the uterus, particularly cancer of the cervix or the institution of new methods will materially improve the results. The time of application rather than the method of treatment is at fault. The most effective means of combating cancer is education of the laity. It is chiefly through energetic educational campaigns that material improvement in the end results is to be expected.

ВАН СЧИМТ ИД

Schmitz H. A Study of the Action of Measured Radiation Doses on Carcinomata of the Uterine Cervix. *Am. J. R.* 16 / 1923 8

The effectiveness of radiation depends on the radiation energy applied, the extent of the disease

within the true pelvis, the type of epithelial cell composing the new growth and the constitutional reaction caused by the radiation. The prognosis and the method of treatment must be based solely upon these findings.

The author studied cervical carcinomata from this point of view in an attempt to ascertain the lethal radiation doses for the different types of cells found in the new growths.

Carcinomata of the uterine cervix are composed of basal squamous or cylindrical epithelial cells. The greater the degree of immaturity of departure from the adult normal histological type, the greater the clinical malignancy.

In the treatment of carcinomata with radium and the roentgen rays changes are produced in the parenchyma and in the stroma. The carcinoma cells undergo degeneration and the connective tissue cells and blood vessels of the stroma show signs of inflammatory reaction. These changes the author describes in detail.

Variations in the clinical response of different types of malignant disease to radium may be readily observed and these differences appear to be related to variations in the histological character of the growth. The physiological action of the rays is proportionate to the amount absorbed, but depends also upon the kind of process initiated through the transformation of absorbed energy. The protoplasm of benign cells and of the different types of malignant cells reacts differently toward the rays. The more undifferentiated and embryonic in type the carcinoma, the more effective the action of radium rays upon it. Radiation sensibility is greatest in the immature basal cell type, less in the adenocarcinoma and least in the squamous cell carcinoma.

The action of radium is local. Within tissues or tumors its intensity depreciates rapidly. A homogeneous penetration of the entire true pelvis with radium rays inserted in the cervix is impossible. Radium used alone can be beneficial in only a small number of cervical carcinomata. The combined application of gamma and roentgen rays renders possible a method assuring homogeneity of radiation intensities throughout the pelvis and greatly extends the field of radiotherapy.

The application of a lethal dose to carcinomata causes destruction of the malignant cells and to some extent of normal cells, especially the white blood corpuscles. The split proteins are absorbed and a non-specific protein toxicosis ensues, which is evidenced by an increase in the nitrogen constituents and a decrease in the chlorides of the blood. A cancer patient who does not react to the rays does not show any disturbance of nitrogen metabolism in the white blood cell count or in the percentage of the white cells. The absence of these reactions indicates a negative result from the radiation treatment due to general resistance (noted especially in advanced cachexia) or insufficient dosage.

The blood of patients in whom the carcinoma has been completely degenerated by radiation has carcinolytic properties as determined by the Freund-Kaminer test. In such cases the palpatory findings are negative and microscopic examination of the smears obtained from the healed cervix reveal total absence of epithelial cancer cells.

The author reports briefly the results obtained in different types of cancer with different doses in 418 consecutive cases. The tentative deduction drawn is that the lethal carcinoma dose for unripe basal cell cancers is about 100 per cent of the erythema skin dose while that for adenocarcinoma is about 130 per cent and that for squamous cell carcinoma is from 150 to 200 per cent. ADOLPH HARTUNG, M.D.

**Oppert M.** A Discussion of Some of the Causes of Inefficacy of Radium in Cancer of the Body of the Uterus (*Discussion sur quelques causes de l'insuffisance du radium dans le cancer du corps de l'utérus*). *Gy. Jg.* 923, xx, 2, 8.

The author ascribes poor results of radium treatment in cases of cancer of the body of the uterus principally to faulty technique. If the applicators are placed properly the results are usually good. Certain superficial cylindrical epitheloma of the corporeal mucosa have been cured with radium.

Long applications with low dosage give better results than heavy and short doses. For cases of cylindrical cancer of the uterine body Oppert advises a systematic biopsy followed by curettage with careful disinfection of the uterine cavity and the prolonged application of a small dose of radium.

SALVATO E. DI PALMA, M.D.

**Bill y H. and Healy W. P.** Follow Up Results of 938 Cases of Uterine Cancer Treated by Radium. *Am. J. Obst. & Gynec.* 93, 14.

In the cases of advanced primary cancer of the cervix there was very little chance of obtaining a cure under any circumstances. When treatment was undertaken not only the cervix but also the parametrium was involved. These cases formed the largest group. Of the eighty patients treated in the years 1915-1917 when radiation was done without much cross firing only two are still alive. Of forty-one treated in 1918 when the bomb and block were used 31 (75 per cent) are alive and free from disease today. Of thirty-nine treated in 1919 only seven are still alive and in two of these the disease is progressing. Of the twenty-two patients treated in 1920 fifteen are living but seven have symptoms. Of eighty-five women treated in 1921 twelve (14 per cent) are still alive and eleven and nineteen are in various stages of the disease. Of the eighty-one treated in 1922 twelve (15 per cent) are apparently well and forty-nine are living but not well. While not enough time has elapsed since the treatment began in the last two years to warrant conclusions, the final results it may be stated that of the 165 women who are beyond the aid of surgery twenty-four now show no clinical evidence of cancer.

In the first five years thirty-three women with borderline cervical cancer were treated; eight of them (24 per cent) are still living and all but one of them are known to be free from evidence of the disease. Of the fifty-one women with this condition who were treated during the last three years twenty-two (43 per cent) are free from signs of cancer and fifteen show the presence of tumor tissue.

The early operable group included eleven women who were treated previous to January, 1919. Of these three (27 per cent) are alive and free from evidence of cancer at the end of five years or longer. If three deaths due to intercurrent disease and one following operation in another clinic are deducted, 43 per cent of the cases were clinically cured. In the last four years forty-eight women were treated. Of these thirty-two (66 per cent) are free from evidence of the disease. If three are deducted—one who died after an operation in another hospital a week after treatment and two others who could not be traced—thirty-one (71 per cent) of this group are still alive. In early operable cases excellent results are expected from irradiation and other treatment is seldom given. However, as there seems to be no doubt that hysterectomy alone has cured cases of cancer of the cervix it is sometimes performed in favorable cases several weeks after full radiation. Just how much to be gained from this is still a matter of conjecture.

Of fifty-two women with recurrent cancer who were treated previous to 1918 two are still alive and well and another is alive but with some evidence of tumor. In the past five years during which time the technique has been considerably elaborated by the use of cross firing and the embedding of radium emanation in the lesion a remarkable number of these cases have been apparently cured. Of the 168 women in this group thirty-eight (22 per cent) have no clinical evidence of cancer.

Of twenty-nine women subjected to hysterectomy in the period from 1917 to 1923 twenty-one (72.5 per cent) are alive and free from signs of recurrence and five of these have been well for five years.

Of forty-one women with cancer of the body of the uterus twenty-one (49 per cent) are alive and well. Three of these have passed the five-year period; nine were subjected to hysterectomy following the irradiation. LEONARD L. CORLI, M.D.

#### ADNEXAL AND PERI UTERINE CONDITIONS

**Noak E. and T. Linde R. W.** The Pathological Anatomy of the Corpus Luteum (Abstr. *Cyst. Haemat. and Neoplasms*). *Bull. J. Obst. & Gynec.* 93, 89.

This article is based on hundreds of sections of corpora lutea examined in the gynecological laboratory at the Johns Hopkins Hospital during the past three or four years.

The most important pathological conditions affecting the corpus luteum are (1) abscess formation, (2) cyst, (3) hematoma and (4) neoplasm.

Corpus luteum abscesses are very frequent constituting a considerable percentage of ovarian abscesses. It is probable that they arise from infection of normal corpora lutea corpus luteum cysts or corpus luteum hematomata. It is often difficult to draw a line between cysts and hematomata and the individual variations observed in the corpus luteum under normal conditions. The two most important factors in this differentiation are the size of the structure and the histological character of its limiting wall. Both cyst and hematomata are usually associated with pelvic inflammatory disease.

Corpus luteum cysts may be subdivided into (1) newly formed cysts in which the lutein layer is well preserved and there is little or no fibrous tissue deposit between it and the contents and (2) old cysts in which the age is indicated by retrogression of the lutein zone and by the heavy organized layer on its lumen side.

A review of the menstrual histories in cases of new corpus luteum cysts indicates that in general the lutein zone corresponds to the developmental stage which would be expected at the time and that the structure in spite of its cystic nature is still of functional importance. The older cysts on the other hand have entirely dropped out of the physiological cycle and exert no influence on the menstrual function.

These findings throw doubt upon the prevalent impression that corpus luteum cysts have a tendency to delay menstruation and that they bring about a clinical syndrome easily mistaken for that of tubal pregnancy (amenorrhoea followed by prolonged bleeding and associated with the presence of a unilaminar mass). While it is possible that there may be a definite endocrinopathic or other entity of this so-called corpus luteum persistens type it is exceedingly difficult in cases of this kind to rule out the possibility of a very early abortion of a tubal or uterine pregnancy. The possibility of such an error is illustrated by a case reported. The difficulty in eliminating pregnancy is increased by the fact that complete resorption of the embryo is possible as has been shown by Evans and others.

Corpus luteum hematomata are commonly due to excessive hemorrhage into the lumen during the stage of vascularization. Like the cysts they may be divided into two types the recently formed and the old and these types bear the same relation to the menstrual phenomenon as the corresponding types of cysts.

In certain cysts and hematomata the walls present the characteristic corpus albicans structure. With the exception of the few very large cysts of this character which have been reported but which are of doubtful nature the corpus albicans cysts and hematomata are doubtless merely the end results of the normal cystic or hemorrhagic corpora lutea.

Various authors have described ovarian tumors of supposedly lutein origin. There is no reason why

such tumors should not occur growths chiefly carcinomata which suggested such an origin have been seen. At least some of the fourteen cases of lutein cell tumors collected from the literature by Glynn are very doubtful and further investigation will be necessary before the possibility of a lutein origin of certain ovarian tumors can be accepted as definitely established.

The condition spoken of as multiple lutein cysts of the ovary which is found in certain cases of hydatidiform mole and chorionepithelioma and is sometimes erroneously designated as multiple corpus luteum cysts is due to a wide spread lutein like transformation of the theca cells in the atretic follicles which are greatly increased in size and number.

Excellent photomicrographs illustrating the various conditions affecting the corpus luteum are included in the article R. S. CROSS, M.D.

### EXTERNAL GENITALIA

Dieulafoy M. L. Multiple Cysts of the Vagina  
(K) t mult pl s du gi ) B H Soc Obst et  
d gynec d Pa 923 11 34

The case reported was that of a 32 year old patient in the second month of pregnancy who complained of vaginal pruritus and a vaginal tumor. The tumor had been punctured but subsequently had increased in size.

At operation a large cyst extending to the cul de sac and almost to the base of the broad ligament was excised from the left wall of the vagina and three others ranging in size from that of a walnut to that of a small egg were removed from the right wall. The walls of the smaller cysts were thin and their contents viscid and transparent. In a cyst of medium size the walls were thicker and the contents sanguinous. The largest cyst had a very thick wall and infected contents.

Microscopic examination showed the lining membrane to be covered with cuboid epithelium.

SALVATORE DI PALMA, M.D.

### MISCELLANEOUS

McCaig H. M. and Bonney V. Gynecology and General Medicine. The Relation Between Certain Disorders of the Female Pelvic Organs and Symptom Ordinarily Considered the Province of the Physician. L. 1913 ccv

Clinical states that ordinarily would not be suspected of a gynecological origin include intestinal stasis, genito-urinary infections, arthritis, sciatica, neurorheumatism, cystitis and choroiditis.

A weakened pelvic floor may give rise to intestinal stasis which in turn may cause dilatation of the bowel and favor the absorption of toxins. A weakened pelvic floor may cause displacement of the uterus with obstructive constipation. It may produce rectocele, cystocele and prolapse of the rectum.



and as the result of cystocele genito urinary infection may occur

The factors involved in the act of defecation—muscular contraction of the wall of the bowel a rise in the intra abdominal pressure produced by straining and contraction of the fibers of the levator ani—are discussed and the mechanism of cystocele rectocele prolapse of the rectum displacement of the uterus and enteroptosis is explained

Symptoms which may be of gynecological origin include obstinate constipation heart disease which is in reality a distended splenic flexure of the colon indigestion due to flatulent distention of the stomach neurasthenia and arthritis due to toxæmia of infected tubes or an endocervicitis In certain cases infection of the eye may have its primary focus in the pelvic organs

To emphasize the importance of a careful gynecological examination as a part of a general examination numerous cases illustrating the various clinical manifestations of gynecological conditions are cited

I EDWARD BISHKOW MD

**Curtis A H** The Pathology and Treatment of Chronic Leucorrhœa A Further Clinical Study of This Subject *Surg Gynec & Obst* 1923 xxxvii 657

In extensive histopathological and bacteriological studies of chronic leucorrhœa the source of the purulent discharge was found to be the cervix Prior

to 1919 the results of treatment were uniformly poor Recently following the treatment outlined in this article the results have been more favorable

The patient is given nitrous oxide and the vicinity of the urethra is searched for infected Skene's ducts and urethral glands Diseased foci are threaded on the blunt end of a needle the tract is laid open with a knife and the lining is fulgurated or cauterized Bartholin's glands are seldom found diseased

In the author's hands radium has yielded good results in selected cases in which surgery was not advisable Occasionally he has used radium after the removal of a wedge shaped portion of the cervix The technique of radium treatment is as follows

After dilatation and curettage two 25 mgm tubes of radium in tandem are introduced into the canal and held in position by means of a clip at the external os The screen is a rubber-covered gold capsule 0.5 mm thick In the cases of young women with regular menstruation the application is continued seven hours radiation for this period of time never disturbs normal menstruation Women over 35 years of age must be treated with greater caution

The immediate result is a greater discharge which persists for many weeks This is followed by a period in which there is no discharge During the waiting period the cervix is dilated at intervals Usually the improvement is gradual In a considerable number of cases a second radium treatment is necessary

HARRY W FINK MD

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Friberg E E** The Cholesterol Metabolism During Pregnancy and the Puerperium (Zur Fr ge d Cholesterin stoffwechsels wachsend der Schwangerschaft und im Wochenbett) *Arch f Gynaek* 19 3 cxix 57

During pregnancy there is a considerable decrease in the biliary cholesterol while the cholesterol content of the blood is raised. After delivery the cholesterol is rapidly carried away chiefly through the milk but also by way of the bile. With increased excretion of cholesterol there is an increase in the concentration of the cystic bile probably due to deficiency of fluid in the body from the loss of blood occurring during delivery. Both factors explain the formation of gall stones following delivery.

The temporary cessation of ovarian function during pregnancy seems to favor lipid retention. In experiments it was found possible to increase the cholesterol content of the blood and decrease it in the bile by exclusion of the ovarian function. The cystic bile was obtained by means of a duodenal sound after the injection of Witte's peptone.

**FRIEBERG (G)**

**Boursier and Gautret** Acute Hydramnios Abdominal Puncture Continuation of the Pregnancy (Hydramnios aiguë ponction abdominale continue) *Bull soc d'obst et gyn c d P* 913 xi 389

The authors report a case of acute hydramnios in the eighth month of pregnancy. The abdominal distention had increased so rapidly and had become so marked that it produced severe epigastric pain and respiratory distress.

By means of a Potain trocar No. 1 paracentesis of the uterus was done through the abdominal wall below and to the left of the umbilicus. 2 liters of amniotic fluid were withdrawn. The symptoms of pain and respiratory distress ceased. By the seventh day however the abdomen began to enlarge and the symptoms recurred. After rupture of the amniotic sac labor was induced by the introduction of a bag. The authors preferred abdominal puncture to interruption of the pregnancy at first because of the impossibility of determining definitely the size of the fetus.

**JAMES V. RICCI M.D.**

**Martin J** The Indications for the Treatment of Severe Pylonephrosis Complicating Pregnancy (Des indications du traitement des formes graves de pyélonéphrite gravidique) *J d u méd tch r* 19 3 x 445

Martin reports a case of pyelonephrosis in a 20-year-old woman in the sixth month of pregnancy.

As ureteral catheterization for irrigation of the renal pelvis became impossible nephrotomy was done. Miscarriage followed. Immediately thereafter the patient's condition improved.

In the literature Martin has found the reports of ten cases of severe pyelonephrosis occurring between the fifth and eighth months of pregnancy in which immediate improvement followed the induction of labor. He has found also the reports of nine cases in which pyelonephrotomy was done. In eight of them the operation was followed by abortion and in four a nephrectomy was done later. Martin believes that since the renal infection is incidental to the gestation the induction of labor might be sufficient to effect a cure.

**JAMES V. RICCI M.D.**

**Tourneux J P** Vaginal Hysterectomy in the Treatment of Peritonitis Due to Abortion (Du traitement des péritonites post-abortales par l'hystérectomie vaginale) *Bull Soc d'obst et gyn c d P* 9 3 xi 354

The author reports three cases. There was one death. In two cases medical treatment was tried first but was unsuccessful.

Tourneux prefers the vaginal to the abdominal hysterectomy because it causes less shock, it can be performed with more speed, and it is free from the danger of infecting the general peritoneal cavity.

**SALVATORE DI PALMA M.D.**

**Duverger and Dax** Pyelonephritis Complicating Pregnancy Treatment Combining Intravenous Injections of Urotropin and Irrigation of the Renal Pelvis (La pyélonéphrite de la grossesse son traitement par la méthode combinée des injections intraveineuses d'urotropine et des lavages du bassinet) *J d méd de Bordeaux* 19 3 xc 442

For the treatment of pyelonephritis occurring in pregnancy the authors advocate intravenous injections of urotropin and irrigation of the renal pelvis with an antiseptic such as boric acid, argyrol, or protargol. They give intravenously 1 gm of urotropin dissolved in 10 c.c. of sterile water every day or every other day until improvement is indicated by a fall in the temperature. The renal pelvis is irrigated with a 1:1000 solution of silver nitrate at the conclusion of the irrigation a small quantity of a 5 per cent solution of argyrol or a 1 per cent solution of silver nitrate is injected. Catheterization has been done in most cases three times a week but should be repeated daily if necessary. Ureteral catheters can seldom be left in situ without causing considerable discomfort.

**JAMES V. RICCI M.D.**

Vayssière The Treatment of Severe Hyperemesis gravidarum with Chloral (Vomissements graves traités par le chloral) *Bull Soc d'obst et de gynec de P* 1923 21 251

The author reports two cases of severe hyperemesis gravidarum that proved refractory to the usual treatment by starvation and the administration of adrenalin belladonna and aconite but were finally cured by enemata of 3 to 4 gm. of chloral hydrate. The vomiting ceased after three treatments. JAMES V. RICCI M.D.

Litzberg J. C. Myomata of the Uterus and Pregnancy *S. G. Clin. & Am.* 1923 1 285

While myomata in the pregnant uterus are common they are seldom dangerous complications of pregnancy, labor or the puerperium. In a few cases however operation is necessary on account of their size, rapid growth, location in the lower segment, incarceration in the pelvis, pressure symptoms, threatened abortion or contracted pelvis. Myomata of the pregnant uterus almost always increase in size, the enlargement being due to growth of the tumor elements and edema. The tumors are very much softer than in the non pregnant uterus and may be mistaken for cysts. After delivery they decrease in size rather rapidly.

It is remarkable how frequently when it is thought that the tumor will produce impaction it rises out of the pelvis and delivery and the puerperium are normal. When operation is deemed necessary enucleation is the procedure of choice. The incidence of abortion following enucleation is only 15 per cent. The tumors seem to shell out of the pregnant uterus much more easily than from the non pregnant uterus. Care should be taken not to tie the ligatures too tight. The corpus luteum of pregnancy must not be disturbed.

HARRY W. FINK M.D.

Reeb The Diagnosis of Intra Uterine Pregnancy Complicated by Fibroid (Après le diagnostic d'un gros sac accompagné de tumeurs) *B. II Soc d'obst et de gynec de P* 1923 43

Before the fifth month of gestation the X-ray is of no value in differentiating an intra uterine pregnancy from a fibroid uterus. Uniform enlargement of the uterus, congestion, a soft consistency and broad ligament varicosities are found in both conditions. Rouville advocates sectioning the ovaries to determine the presence of a corpus luteum of pregnancy. This would be of aid only up to the third month. Pathognomonic of myomata is a change in the position of the mass noted at repeated examinations made at intervals. JAMES V. RICCI M.D.

Schickel Th. Diagnosis of Extra and Intra Uterine Pregnancy (Après le diagnostic de la grossesse intra utérine) *B. II Soc d'obst et de gynec de P* 1923 21 435

Schickel reports two cases of erroneous diagnosis of extra uterine pregnancy. In the first that of a

woman in the seventh month of pregnancy the error was due to atony of the uterine wall which rendered the fetal parts and heart sounds very distinct. In the second that of a woman in the second month of pregnancy it was due to varicosity of the broad ligament.

Auvray and Delater A Case of Ruptured Tubal Pregnancy with a Co Existing Uterine Pregnancy (Un cas de grossesse extra utérine tubaire rompue avec co-existence d'une grossesse utérine) *B. II Soc d'obst et de gynec de P* 1923 21 432

A para u with a history of metritis after amenorrhea for one month was suddenly seized with acute pain in the left lower quadrant of the abdomen. Following the application of hot compresses the pain ceased but a light vaginal bleeding appeared. On the patient's admission to the hospital a diagnosis of tubal pregnancy was made on the basis of the very typical history and the findings of vaginal examination. On the morning of operation she passed a mass which examination showed to be a gestation sac. Operation revealed rupture of the left tube due to tubal pregnancy. Histological examination of the specimens confirmed the clinical diagnosis. In the authors' opinion such cases are not rare. SALVATORE DI PALMA M.D.

## LABOR AND ITS COMPLICATIONS

Danforth W. C. and Davis C. H. Obstetrical Analgesia and Anesthesia. A Consideration of Nitrous Oxid, Oxygen and Various Combined Methods. *J. Am. M. Ass.* 1923 LXXIX 1090

The measures used by the authors for the relief of pain in labor are divided into those which are applicable in the first stage and those which may be used in the second stage. The use of inhalation anesthetics during most of the first stage is not recommended but nitrous oxide may be employed late in the first stage. Reliance for relief during the first stage must be placed chiefly on drugs administered hypodermically by mouth or by rectum. The drug chosen may be one of the opiates morphine, codeine, heroin or pantopon given alone or combined with scopolamine (hyoscin) hypodermically or chloral given by mouth or rectum. The authors prefer one of the opiates in combination with scopolamine such as morphine, scopolamine or pantopon, scopolamine the scopolamine being repeated if necessary.

In a long first stage it appeared that if the patient was relieved of pain she went through the long hours of dilatation with less fatigue and nervous strain and approached the second stage with her physical powers more nearly intact than if no relief was given in the first stage. In the use of the drugs mentioned the authors have made no attempt to approach the so-called twilight sleep or to produce amnesia. Their desire has been only to dull the severity of the pain and perhaps to produce a light degree

of somnolence between the pains. Usually this may be accomplished with morphine  $\frac{1}{6}$  gr (0.0165 gm) and scopolamine  $\frac{1}{8}$  gr (0.00625 gm) given in two parts from fifteen to thirty minutes apart. If in the case of a woman whose susceptibility to opium is above the average the contractions cease after the administration of the hypodermic medication they do not resort to the administration of pituitary extract but await the spontaneous resumption of labor. However this is not a frequent occurrence.

Because of the danger of narcotizing the child no opiate should be given within three or at least two hours of delivery.

Pantopon appears to be apt to produce this effect than the other alkaloids of opium. The obstetrician must note carefully the rapidity with which the labor is proceeding and the progress already made. In this experience is of great value.

At the end of the first stage or in some cases when the first stage is nearing its end it is necessary to add some form of inhalation anæsthetic. In the authors' experience nitrous oxide or the combination of nitrous oxide and oxygen has proved most satisfactory.

A series of tables summarizes the results in over 3,000 consecutive deliveries at the Evanston hospital, Evanston, Illinois, and in two recent series of 400 cases conducted by each of the authors. The technique of administering nitrous oxide-oxygen analgesia is described briefly.

The analgesic or the anæsthetic should be chosen for the operation and the needs of the particular patient. For the long first stage of labor an opiate alone or in combination with scopolamine is often indicated. For the longer operations during pregnancy and labor ether is usually the inhalation anæsthetic of choice. Nitrous oxide-oxygen may be used for examinations and short operations and for intermittent analgesia during the second stage of labor.

ROLAND S. CROV, M.D.

Gwathmey J. T., Donoan E. P., O'Reagan J. and Cowan I. R. *Painless Childbirth by Syngistic Methods*. *Am. J. Obst. & Gynec.* 1933, 45b.

In the development of the method described great care was taken to reject all cases that would in any way obscure the issue. For instance no medication was given if the uterus was dilating evenly and the contractions were occurring regularly with little pain as under such circumstances an even and sometimes a painless delivery was assured. Medication was withheld also when the cervix was fully dilated (four fingers or more) when the fetal heart sounds were irregular or poor when malposition was found and when there was any doubt regarding the condition of the child. The cases selected were those not too far advanced in which there was a possibility of giving aid.

The results have varied but in most instances the patient was helped, the pains were lessened, and in a few the delivery was rendered comparatively painless. Other patients were not

helped in the slightest and one or two stated that the pains were intensified. The last statement can be accounted for only by the possibility that the patient who expected very great help received only a little.

The formula used for the rectal instillation is 10 gr of quinine hydrobromide, 4 dr of alcohol, 2½ oz of ether and 1 oz of olive oil. Reliance for the major effect is placed upon the synergism of ether and magnesium sulphate.

The hypodermic is given when the cervix is dilated approximately two fingers. If a 25 per cent solution of magnesium sulphate is used  $\frac{1}{6}$  or  $\frac{1}{4}$  gr of morphine may be given with the first hypodermic only. If a 50 per cent solution is used no morphine is given. The hypodermic is not repeated unless the sedative effect wears off or is insufficient. The object of the hypodermic is stated to the patient as the relief of pain. The patient is kept as quiet as possible. If she is in a ward the bed is screened and if she is in a room the light is excluded and the door is closed. Loud talking and other noise are avoided as much as possible.

Just before the instillation is given the patient is told that its object is to relieve pain. When the cervix is dilated about three fingers and there are good contractions she is placed on her left side in the Sims position. The catheter is filled with olive oil in order to exclude air and is inserted into the rectum about 4 in. The syringe is filled with the entire amount of the instillation and the injection is given slowly with care not to admit air between the olive oil in the catheter and the mixture in the syringe. Under gentle pressure the fluid is passed between contractions, the entire amount being given between two to four contractions. The patient is told to squeeze up in order to induce reverse peristalsis. She is told also that retention will cause no pain, her cooperation being thus secured. Pressure is made on the perineum with a towel during the pains for from ten to fifteen minutes and the tube is withdrawn in five or ten minutes. The patient is then permitted to lie on her back or in whatever position is most comfortable. Cotton is placed in her ears and her head is covered with some dark colored material or a towel. Only necessary attention is then given her and all manipulations are made as gently as possible.

Asphyxia occurred in one of the sixty-four cases, an incidence of 0.64 per cent. The authors conclude that synergistic analgesia is safer than oil, ether, analgesia or twilight sleep.

EDWARD L. CORNELL, M.D.

Chatillon F. *Injections of Pituitary Extract in Obstetrics* (La question des injections d'extraits hypophysaires dans la pratique obstétricale). *Rev. f. gynec. et gynéc.* 1923, 13, 448.

Chatillon recommends the hypodermic or intramuscular injection of pituitary extract during the terminal stages of cervical dilatation and the second stage of labor. Doses of 95 c.m. given at this

time will hasten delivery and limit the amount of bleeding. Given intravenously the extract is most effective in stimulating an atonic uterus and in controlling postpartum hemorrhage.

J MRS V RICE MD

Ryder G H. Breech Presentations Treated by Prophylactic External Version. Report of Fifty Nine Breech Presentations So Treated. S G Gy c & Ob 1 1933 x 1 660

Because of the danger of breech delivery even when the pelvis is normal the author converts breech presentation into vertex presentation by external version whenever this is practicable. In the 890 consecutive deliveries in his private practice there were fifty nine breech presentations twenty four in primiparae and thirty five in multiparae.

In the fifty nine cases treated by prophylactic version the only fetuses lost were non viable two of the women were not under observation before labor. In none of the thirty primiparae did the fetus turn back to its original presentation. In several of the multiparae this occurred but in all except two the fetus was easily returned to the vertex presentation.

By far the greater number of versions were done in the seventh and eighth months. Twenty three of these were done without an anesthetic. There was no maternal mortality and in no case did the version seem to harm the mother to the slightest degree. No appliances were used to retain the fetus in the corrected position. HARRY W FRICK MD

Martin B H and Brinkley A S. An Unusual Accident During Delivery at Term. J L 3 31 31 31 9 3 1 457

The authors' patient was a woman who had gone through three normal deliveries and had had no miscarriages. The pregnancy had been normal. Labor began at about 10 a m with occasional pains. When the patient was examined at noon a diagnosis of breech presentation was made. At this time there was a dilatation of about 2 in. In the evening the cervix was dilated the pains recurred at intervals of five minutes and on examination the diagnosis was face presentation. At 9.45 p m a little chloroform by inhalation and a hypodermic injection of 5 minims of pituitrin were given. The administration of the pituitrin was followed by a very severe pain and several slight pains for the next thirty or forty minutes. There was a moderate flow of blood from the vagina. As the head made no advance the operator prepared to do a version. On introducing his hand he found that the baby was out of the uterine cavity and his hand was in the abdomen. A version was quickly done and a dead child delivered. The placenta was removed manually.

On further examination the vaginal vault was found to be completely torn away from its attachment to the cervix only a small bridge of tissue remaining posteriorly. The vagina was quickly packed with gauze. The patient at this time showed

no evidence of shock her pulse ranged between 80 and 85. She complained of severe pain in both iliac regions radiating to the hips and down the thighs and of difficulty in breathing.

A laparotomy done under gas oxygen and ether anesthesia revealed a small amount of blood in the abdominal cavity and blood clots in both broad ligaments. The uterus was well contracted and showed no signs of rupture. The uterus was found to be suspended only by the tubes and a small bridge of the vaginal attachment about 1 1/2 in wide. Both broad ligaments were lacerated up to the pelvic brim. The uterine arteries which were pulsating and as free as if they had been carefully dissected were quickly clamped. As the left tube and ovary were injured and their blood supply had been cut off they were removed with the uterus. The right tube and ovary were preserved. The vagina was repaired and closed with a pursestring suture around a cigarette drain. The stump of the right broad ligament and the tube were fixed to the vaginal vault for support and the raw surfaces were covered with the peritoneal reflection of the bladder. About 3 qt of saline solution were left in the abdominal cavity.

The patient recovered after a fairly stormy convalescence. HARRY W FRICK MD

Commander H. and Chapuis L. The Mechanism of the Separation of the Placenta and Membranes During Delivery. (Le mécanisme de la décollation du placenta et des membranes.) Gy 1 1 1933 440

Separation of the placenta is brought about by uterine contractions occurring after the immediate retraction of the uterus following delivery. These contractions first increase the thickness of the uterine muscles and render the uterine wall or at least its middle segment uniform in thickness. Their second effect is a decrease in the surface of the placental insertion. The third effect which is dependent upon the reduction of the surface of the placental insertion is a considerable increase in the thickness of the placenta particularly in its central portion.

The reduction of the surface of the placental insertion and the increase in the thickness of the placenta have a double result. (1) The decidua serotina becomes swollen to six or seven times its normal thickness. (2) The chorionic villi which are normally more or less tortuous in the placenta during pregnancy are placed under tension.

The traction exerted by the chorionic villi on the compact layer of the decidua is transmitted to the interlacunar partitions and these being fragile break with ease.

The merging of the lacunae forms a gap into which open blood vessels pour their blood. This is the beginning of the retroplacental hematoma. As this hematoma is formed it contributes mechanically to the separation of the placental surface.

It is thus evident that the mechanism of the villous traction has its maximum effect on the center of the placenta and that the mechanical separation by the retroplacental hematoma is toward the outer border of the placenta. The separation of the membranes is not the same being due to (1) the infiltration of the retroplacental hematoma between the muscle and membranes under the pressure of the uterine contraction and (2) the traction exerted on the membranes by the descent of the placenta toward the cervical orifice and the lower genitals. Therefore the separation of the membranes does not occur at the same time as that of the placenta.

SALVATORE DI PALMA M D

**Chatillon F. The Treatment of Retention of the Placenta by Injections into the Umbilical Vein**  
(Le traitement de la rétention du placenta par les injections fœtales) *Rev Fac d Gyec* 1923 xv 521

The mortality associated with manual extraction of the placenta ranges from 3.6 to 13 per cent and the morbidity from 25 to 75 per cent. Chatillon has obtained better results with the method employed a century ago by Mojon and others—that of injecting fluid into the umbilical vein. The umbilical vein is exposed and by means of a 100-cm syringe from 200 to 400 ccm of normal salt solution are injected into it slowly.

This method is now used in the obstetrical clinic of Geneva when the Crede method fails. It is very efficacious and has reduced by one half the number of cases in which manual extraction is indicated. In some cases however a second and third trial may be necessary. Failure in the third attempt necessitates intra uterine manipulation.

JAMES V. RICCI M D

**Audebert and Rascol. A Histologic Study of the Uterine Scars Due to Cesarean Section** (Etude histologique des cicatrices utérines post-césariennes) *Bull Soc d'obst Gynec* 1923 xi 40

In both of the cases reported two cesarean sections had been performed. In one the second was done two years after the first and in the other after an interval of four years. At the time of the second operation a hysterectomy was performed.

Microscopic examination of the uterus revealed scarcely any scar but slight thinning out of the interior of the uterine surface was apparent. Microscopic study revealed normal union of the muscular layers with no evidence of cicatrization between the layers of the muscular bundles and the intervening fibrous tissue.

JAMES V. RICCI M D

## PUERPERIUM AND ITS COMPLICATIONS

**Thoms H. An Outline of Postpartum Care**  
*Am J Obst & Gynec* 1923 444

After delivery a period of rest is of great importance. If after a short time a period of rest is not

obtained naturally the author has no hesitancy in using codeine or even morphine to secure it.

The first few hours after labor the patient is kept flat on her back without pillows. After twenty-four hours she may turn on her side for a short time. After the third day she is encouraged to lie first on one side and then on the other and for a while each day on her abdomen. On the third or fourth day she is propped up for a short time one notch on the Catch bed. The elevation is increased daily and on the seventh day she is allowed to sit up practically as long as she desires. If on the tenth day the fundus has reached the level of the symphysis she is allowed out of bed in a chair for a few minutes. The length of time spent in the chair is increased daily as her strength increases and on the thirteenth or fourteenth day she is allowed to walk a little. As soon after this as she is able to come to the author's office a thorough pelvic and general examination is made.

For the past few years the author's patients have been given a general diet from the first day of the puerperium. Thoms believes that the patient is more apt to realize that she is convalescing normally if she is allowed to eat the food to which she is accustomed.

In the care of the urinary bladder catheterization is done only as a last resort. The great danger of prolonged cystitis resulting from catheterization done even under the most aseptic conditions must be constantly borne in mind.

The routine use of castor oil and other purgatives following childbirth is regarded by the author as unnecessary. If the bowels are sluggish a mild vegetable cathartic or mineral oil is given at bedtime.

In the care of the birth canal efforts are directed merely to the maintenance of an episiotomy. The discharges must not be allowed to accumulate there for vulva pad of aseptic absorbent material are employed. For the first two or three days these pads are changed at least every three or four hours. After each urination or bowel movement the genitals are washed from above downward. In Thoms' opinion douches are distinctly contra-indicated during the normal puerperium.

The beneficial effect of lactation on uterine contraction and involution is borne in mind. After the first rest following delivery in the author's cases the breasts and nipples are thoroughly cleansed with soap and water and a simple ointment is applied to the nipples with sterile gauze or oiled silk or paper. Either sterile vaseline or lanolin may be used for this purpose. The baby is placed to the breast eight or ten hours after birth and thereafter is placed on each breast for five minutes every four hours until the secretion of milk begins to come in. When this occurs it is nursed at three hour intervals during the day and at four hour intervals at night. Nothing further is done for the breasts except cleansing with boric acid before and after each nursing.

At the beginning of lactation the breasts very often become engorged and painful. As a rule this is due largely to venous congestion instead of milk

retention. The application of a large hot compress gives almost immediate relief. If fissures are treated immediately on their appearance breast infection will seldom occur. Various astringents such as glycerite of tannin, tincture of benzoin or witch hazel may be used.

The proper treatment of the relaxed abdominal wall following childbirth demands attention not only to prevent a pendulous abdomen but also for comfort. The author does not advocate the routine use of the abdominal binder but believes that such support cannot be dispensed with entirely. When the patient is up and about abdominal exercises to restore the muscular tone are prescribed.

EDWARD L. CORNELL M.D.

**Ferrère** Postpartum Eclamptic Seizures without Albuminuria Morphine Treatment Polyuria Cure (Crisis éclamptique sans albuminurie sans albuminurie traitement par la morphine polyurie guérison) *Bull Soc Obstét Gynéc et d'obst* 1923 96

The author's patient a primipara 21 years old experienced a severe eclamptic seizure just after delivery. Reported examination of the urine showed the absence of albumin. The quantity of urine passed in twenty-four hours was 2 liters.

Hypodermic injections of morphine were given. Following an initial dose of 3 cgm, 1 cgm was administered every hour for six hours. A cure resulted.

SALVATORE DI PALMA M.D.

**Lévy Solal and Tanck** The Pathogenesis and Therapeutics of Puerperal Eclampsia (Nouvelles recherches sur la pathogénèse et la thérapeutique de l'éclampsie puerpérale) *Pres Méd* 1923 331 669

In the cases of eclampsia studied by the authors the organic lesions were inconstant. They seemed to be determined by the eclampsia or the pre-eclamptic state and constituted possibly a predisposing but not a determining cause of the crisis.

In a series of experiments on animals the injection of the sera of eclamptic women caused death. From this series two active principles were isolated: an anaphylactic principle causing convulsions and a toxic principle which was less severe in action. In discussing the manner in which these substances caused death the authors described the coagulation theory. Coagulation of the blood they believe is only secondary for if anti-coagulants are added to the eclamptic blood and the normal fluidity is obtained or exaggerated the toxicity does not disappear.

In the authors' opinion the toxic principle may occur also in such conditions as albuminuria, acute

edema of the lungs and insufficiency of the kidneys, liver or endocrine glands. The anaphylactic principle which causes the convulsions belongs in the class of antigens.

SALVATORE DI PALMA M.D.

**Dantin A.** The Indications for Vaccine Therapy in Puerperal Infection (Essai sur les indications de la vaccinothérapie dans les infections puerpérales) *Rev f Gynéc et d'obst* 1923 21 46

Dantin reports a case of puerperal sepsis treated with a stock antistreptococcus vaccine made from organisms cultured from the blood of a patient with puerperal sepsis and attenuated with iodine water. Recovery resulted. No blood cultures were made.

JAMES V. RICCI M.D.

**Poux and Racl** Streptococcic Puerperal Septicæmia Cure (Septicémie puerpérale à streptocoques guérie) *Bull Soc Obstét Gynéc et d'obst* 1923 21 453

The authors report a case of streptococcal bacteræmia of puerperal origin which was successfully treated with antistreptococcus serum. Daily injections of 40 ccm of the serum were given for three days. On the first day 1 ccm of 1 per cent of the essence of turpentine was injected to cause a local abscess. Ten days later the abscess pointed and was drained. During the interval between the first and second injection of antistreptococcus serum two ampoules of lantol were given intravenously. Fever injection was followed by a distinct fall in the temperature and the pulse rate and improvement in the quality of the pulse.

JAMES V. RICCI M.D.

## NEWBORN

**Pouget and Houël** Immediate Correction of Cranial Depressions in the Newborn (Redressement immédiat des dépressions crâniennes chez le nouveau-né) *Bull Soc Obstét Gynéc et d'obst* 1923 21 293

In three cases of very difficult labor a cranial depression occurring at delivery was corrected immediately. In the first case the depression occurred in the left parietal region. An incision was made over it and the bone raised by trephination and the introduction of a sound.

In the two other cases the correction was made by means of a strong suture needle such as is used in a symphysectomy. This was introduced tangentially through the sagittal suture and the bone and employed as a lever.

The three patients made an uneventful recovery.

SALVATORE DI PALMA M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

**Santaella R A** Some Considerations upon Renal Vascularization (Algunas consideraciones sobre la vascularización de la glándula renal) *Med Iber* 1923 vii 21 4

The author has studied the renal vascularization in forty cadavers. His findings he summarizes as follows:

1 The renal arteries originate from the aorta in a zone between the body of the first lumbar vertebra and the suprajacent and subjacent intervertebral disks. The width varies from 1 to 10 cm.

2 There is a collateral communication below the capsule and one branch of the spermatic arteries and another with the superior mesenteric arteries.

3 The most frequent primary divisions are two anterior branches and one posterior branch.

4 In general the number of divisional arteries visible at dissection depends upon the size of the aperture of the hilum.

5 The renal arteries are terminal in all their branches; there being no collateral communications between them.

6 The incidence of arterial anomalies is about 25 per cent. Anomalies in number are the most common and of these the variety with two renal arteries is found most frequently.

7 The inferior polar artery generally arises from the trunk of the anterior division and the superior polar artery from the posterior trunk.

8 The afferent branch to the glomerulus is twice the size of the efferent branch, a fact which explains its great importance in renal physiology.

9 The straight arteries probably come from the glomerulus.

10 The ischaemic zone of Hyrt forms a septum which occupies the central region of the kidney, but does not completely separate the anterior and posterior regions of the convex border and of the poles.

W. A. BROWN

**Major R H** The Influence of the Liver on Phenolsulphonephthalein Excretion *J Am Med Ass* 1931 x 36

Animal experiments conducted for the purpose of determining the possible rôle of the liver in influence on the rate of phenolsulphonephthalein excretion showed that while the average excretion of the dye stuff following its intravenous, subcutaneous or intrapleural injection was about the same it was greatly decreased after direct intrahepatic injection. The dye stuff is not delayed in the liver but is destroyed there. Its injection directly into the portal vein is followed by a low excretion or no excretion, whereas its injection into the vena cava is followed by a very high output.

These experiments show that liver tissue has a marked affinity for phenol sulphonephthalein. When the dye stuff is injected subcutaneously or intravenously it probably passes largely through the kidneys and is excreted in the urine. If a considerable portion in the blood stream passes through the liver the latter may either hold it for several hours or destroy it, thus explaining the marked diminution of the phenolsulphonephthalein output when no evidence of renal disease is demonstrable.

LOUIS NEUWELT M D

**Popescu Inotesti C** A Test of Renal Function by a Combination of Alkalinization and the Phenolsulphonephthalein Test (Die funktionelle Prüfung der Nierenfunktion durch Alkalisierung und Phenolsulphonephthalein) *Zentralblatt für innere Medizin* 1923 li 481

Rehn and Guenzburg recently suggested alkalinization and the use of indigo carmine as a test of renal function. Instead of indigo carmine the author employed phenolsulphonephthalein. On the basis of forty cases he comes to the following conclusions:

The test is easily carried out and gives good results. In the normal person the excretion of phenolsulphonephthalein after the administration of alkali begins in from seven to twelve minutes and continues for from seven to thirteen hours. In renal insufficiency it begins in from seven to twenty minutes and continues for from fifteen to forty five hours.

WOLFGANG (7)

**Cassuto A** The Medical Treatment of Pyelitis (Sull' trattamento medico delle pieliti) *Più in Roma* 1923 x 5 med 413

Cassuto outlines a course of treatment for pyelitis which he considers better than the administration of urotropin. It consists in the subcutaneous or intramuscular injection of graduated doses of neosalvarsan or sulfarsenol. He considers the latter much less toxic than the former. Beginning with an injection of 12 cgm, he increases each succeeding dose by 12 cgm until 48 cgm are given at a time. This treatment brings about a diminution and eventually the cessation of all the symptoms and signs of pyelitis much more quickly than the administration of urotropin.

JAMES V. RICCI M D

**Wehner E** The Surgical Treatment of Nephritis (Die chirurgische Behandlung der Nephritis) *Zentralblatt für Chirurgie* 1923 x 467

The author presents in brief a general review of the entire literature. Harrison (1896) was the first to resort to incision of the capsule in inflammations of the kidney, his theory being that the tension within the kidney is an important cause of the



disease Edebohl in 1901 introduced decapsulation of the kidney

Experimentation has demonstrated that decapsulation is followed by quick renal capsule regeneration that the operation causes no morphologically visible injurious influence on the normal parenchyma of the kidney and that no anastomosis worth mentioning takes place between the renal and perirenal blood vessels

Kuemmel designates nephritis apostematosa (suppurative nephritis metastasizing by the blood stream) as a surgical condition Usually it is unilateral The operative procedure must be adapted to the requirements of the particular case In cases of solitary abscesses decapsulation is indicated whereas in cases of large abscesses and those in which the renal pelvis is involved nephrotomy is the procedure of choice In extensive disease of the parenchyma nephrectomy is necessary

The following four groups of acute diseases of the kidney have been treated surgically (1) toxic nephrosis (2) renal eclampsia (3) acute nephrosis (acute glomerulo-nephritis following infectious diseases) and (4) acute glomerulo-nephritis

For toxic nephrosis Kuemmel recommends decapsulation but Pousson prefers nephrotomy Klose has combined decapsulation and nephrotomy

With regard to the results of surgical treatment in eclampsia there is great diversity of opinion

In nephritis following scarlatina Kuemmel Schmidt Hardings and Witnow found that decapsulation was followed by the secretion of urine and the disappearance of the symptoms

Kuemmel Volhard, Hirsh and Lippinger recommend decapsulation also for cases of severe acute glomerulo-nephritis

In nephritis dolorosa and hæmaturic nephritis both decapsulation and nephrotomy have given satisfactory results

The article is supplemented by a very full bibliography LANGE (Z)

Stuckey L. Hæmatogenous Abscesses of the Kidney (Zr Ks tik ham tgn N b esse) H i k Ch p g n bl st 923 u 85

After a detailed discussion of the 114 cases of hæmatogenous suppurative nephritis reported in the literature the author reports three of his own Two of Stuckey's patients were women and one was a man In both women the abscess of the kidney developed after an abortion in one the pus focus was located in the lower pole of the left kidney and in the other the lower poles of both kidneys were involved In the man the abscess was located in the upper pole of the right kidney beneath the dome of the diaphragm and the condition was complicated by pleurisy with effusion on the right side

All of the three cases were diagnosed operated upon and cured previous to the development of a paranephritis The author favors operative interference unconditionally Biscan (Z)

Payr E: Operative Treatment—Ignipuncture—In Cases of Polycystic Degeneration of the Kidneys Pathological and Clinical Observations (De oper t e B haadl g—Ignip nktu —ma h r F elle polycyst che N e e degenerat n Bem kung n ur Path logi und Klinik) Ztschr f Ch 1923 xu 234

Payr has never removed a cystic kidney surgically He considers a nephrectomy justified only in cases of severe persistent hæmorrhage All cases in which there are no symptoms should be left alone In a certain class of cases however there is repeated complaint of colic pain and hæmorrhage and in these undoubtedly palliative treatment is necessary Such treatment must assure at least a temporary amelioration and must be relatively harmless In Payr's opinion ignipuncture meets these demands

In the cases reported the kidney was exposed and the small accessible cysts were punctured with a small pointed galvanocautery point at white heat and the larger cysts opened crosswise or stripped of their coverings Caution is necessary in the vicinity of the renal pelvis and the vascular pedicle

The effectiveness of these procedures depends upon a decrease in the intrarenal pressure the intact parenchyma is spared and the venous congestion which causes the hæmorrhage is relieved Ignipuncture represents a sort of halfway measure between no treatment at all and a radical procedure and makes it possible to control suitable cases for a year GRAHAM (Z)

Rovsing T The Diagnosis and Treatment of Kidney Stones Based upon Twenty Nine Years Experience (U ber D g os u d Behand lu g der N re st nea f Grund g) ebrg Erfah ru g n) Zi k f l Ch 9 i xu 358

In twenty nine years Rovsing has treated 716 cases of kidney stone He distinguishes between primary aseptic stones stones which become infected and stones formed as the result of infection Of his 403 cases of aseptic stone 246 were operated upon With regard to the etiology of these cases Rovsing states that he has noted that patients with so-called surgical nephrolithiasis seldom show symptoms of uric acid diathesis An aseptic stone develops suddenly and after its removal the kidney shows no tendency to form another Rovsing believes that the condition may be the result of the gradual growth of an adenofect of the newborn or oversaturation of the urine with uric or oxalic acid due to a temporary illness especially an illness associated with fever He has seen cases in which urate stones developed from dry diet treatment and oxalate stones developed from the use of rhubarb root over a period of years

The congenital uric acid diathesis causes only gravel and small concretions which are passed without difficulty the occasional appearance of pain and blood is often due to uratic nephritis and perinephritis The latter conditions the author has treated

very successfully by nephrolysis and releasing the kidney from the membrana propria. Occasionally a uric acid diathesis may be unilateral only one kidney passing gravel.

Another diathesis phosphaturia which is readily recognized from the reaction of the urine and the white precipitate is sometimes confused with the uric acid diathesis because it also makes its appearance with dysuria and gravel during conditions of periodical depression. Phosphaturia frequently causes the formation of large stones that become wedged in the ureter or develop into coral shaped concretions in the pelvis. In four of Rovsing's cases of nephrectomy for renal tuberculosis a phosphate stone formed in the other kidney and caused anuria. The greater number of phosphate stones however are due not to a congenital diathesis but to a transitory accidental or artificial phosphaturia caused in many instances by routine treatment with alkaline mineral waters. Instead of dissolving the renal stones become encrusted by layers of phosphate.

There is also a triple phosphaturia caused by the alkaline decomposition of the urine due to infection especially infection by the pyogenic streptococci; the nucleus may be organic material from the inflamed mucous membrane or a urate or oxalate stone. The author reports two cases of cystine stone. Removal of the large stones was followed by treatment with distilled water (1 to 2 liters a day). The patients are well nine and four years respectively after the operation. The first a woman 32 years of age had had a fixed non radiating pain since her twelfth year. There was no hematuria but a large quantity of gravel was passed. The second patient was a girl 4 years of age who had had an attack of paratyphus in her second year and continued to discharge paratyphus bacilli in the urine. One small stone was passed. In both cases the diathesis was unilateral the urine was acid and the stones were coral shaped.

With regard to the diagnosis Rovsing discusses the numerous mistakes made in cases in which occasional or constant pain in the kidney with or without bleeding suggested nephrolithiasis. In this connection he mentions (1) uratic intoxication nephritis which is characterized by the formation of connective tissue and adhesions between the membrana propria and the perirenal fatty tissues and can be cured by nephrolysis (2) partial hydronephrosis due to aberrant vessels and (3) floating kidney with occasional kinking of the ureter.

In the differential diagnosis between inflammation of the caecum and nephrolithiasis (attacks of colic with hematuria) a sign of importance is Rovsing's sign viz indirect pain in the caecum on compression of the descending colon.

The findings of roentgenography are often surprising. Rovsing has roentgenograms made of both kidneys and ureters and of the bladder as the condition is often bilateral or if unilateral may be discovered on the opposite side from where it is believed to be. In some cases the roentgen picture

may conceal stones or suggest them where they do not exist. Oxalate and calcium carbonate usually cast dense shadows but even large stones of oxalate and calcium carbonate may fail to show in the roentgenogram. Triple phosphate and pure uric acid are only faintly visible in the plates. In 316 cases there were forty in which the roentgen ray did not reveal the stone found at operation and six in which the size and number of the stones were erroneously indicated. Other shadow casting bodies at the level of the kidney or ureter particularly calcified lymph glands may lead to a diagnosis of stone when they are associated with attacks of colic due to other conditions. This occurred in four of the author's cases in two intermittent hydronephrosis tuberculous peri ureteritis and pyonephrosis were found in addition to the calcified lymph glands. Particularly striking and difficult to explain is an occasional false shadow suggesting stone in granular nephritis with fibrous perinephritis.

Of importance in the prognosis and treatment is the bacteriological examination of the urine taken under aseptic conditions from the bladder and ureter. In 276 cases the urine was sterile and in 197 cases the usually benign colon bacillus was found. In nineteen of the latter the bacillus had disintegrated the stone and in thirteen had led to pseudo-membranous pyelitis with shell and gravel formation.

As treatment the author recommends the drinking of 2 liters of distilled water daily. This is curative however only when the stones are small urate or oxalate stones not larger than a pea. Rovsing warns against the customary treatment with alkaline mineral waters. In infected cases without obstruction the distilled water treatment is indicated to wash out the kidney and renal pelvis previous to operation. It is of value also after nephrolithotomy especially in cases of uric acid diathesis. Cases of inoperable bilateral nephrolithiasis can be rendered operable by energetic water treatment.

In 331 of 716 cases the water treatment was sufficient for a cure. In the remaining 385 cases operation was necessary. There were forty four deaths a mortality of 11.4 per cent. Nephrolithotomy was performed in 256 cases pyelolithotomy in eight nephrectomy in seventy six and ureterolithotomy in forty five. The respective mortality rates of these operations were 30.0, 10.0 and 4.0 per cent. The high death rate was due to the large number of cases in which the destruction of the kidney was advanced.

In order to prevent renal hemorrhage following nephrolithotomy the author avoids the use of a sharp instrument. The stone or its presumed site is firmly grasped with the index finger and thumb of the left hand and through a small incision in the membrana propria closed forceps are inserted directly against it. The opening is dilated with the forceps and the stone freed from the tissues and drawn out. The wound in the kidney is then sutured with catgut.

The author seldom performs pyelotomy. When the kidney tissue is greatly degenerated and reduced

there is generally a coral shaped stone which cannot be removed through a small slit in the pelvis or there is infection and an infected wound in the pelvis will lead to nephrectomy because of fistula formation. Therefore Rovsing performs this operation only in aseptic cases with a single round stone in the pelvis.

In cases of ureteral stones the site of lodgement must be determined. When a stone juts out into the vesical ostium it is generally possible to insert a sound beyond it and at the same time to dilate the papilla so that it may be drawn out. If the stone is at a higher site the author brings the ureter outside the peritoneum through an incision from the erector around the anterosuperior iliac spine along the margin of the pelvis to the middle of Poupart's ligament. The dilated ureter is easily found and is carefully freed to the point at which the stone is felt. If stones are present also in the kidney the stone in the ureter is pressed upward and removed with the others by nephrotomy, otherwise it is pressed to a favorable position fixed with the left index finger and thumb and released through a small longitudinal incision. A bougie is then run up and down the ureter to test its patency and the wound closed with a single row of extramucous sutures. The abdomen is closed around a cigarette drain. No catheter is employed.

ГЛА X (Z)

**Ceccarelli G. The Importance of Vascular Nephrectomy in Cases of Renal Renal Surgery**  
(Simplified in the name of the author)  
as directed by the author) *Arch Surg*  
1923, 44

Experimental research to establish the functional and structural alterations undergone by the kidney consecutive to ligation of one or both blood vessels has acquired particular importance with the development of conservative renal surgery. The author reviews such experimental work and reports a number of investigations of his own.

In dogs Ceccarelli created adhesions between the parenchyma of the two kidneys then formed vascular connections between the two organs analogous to those produced by Litten between the kidney, liver and spleen and then after adhesion had been obtained, attempted to determine what changes occurred in one kidney when the artery or the vein in the other was ligated and the circulation impeded. The findings of this investigation are summarized as follows:

1. Union of the two kidneys within the peritoneal cavity can be established without great difficulty.
2. The functional disturbances following this intervention are slight and there is rapid and complete recovery from the lesions due to the suturing.
3. When the kidneys are approximated by the bleeding surfaces a newly formed tissue arising from the fibrous capsule becomes interposed and rapidly separates them.
4. Very important vascular connections are formed between the two kidneys which supplement the adhesions formed in the peritoneal tissues. There

fore renal function can continue for some time after ligation of the entire vascular pedicle of one side. When the vessels and the ureter of one of the kidneys is sectioned between two ligatures a hydronephrosis of this side is formed. Very soon however the functioning of the kidney ceases and the entire organ becomes cirrhotic. If in one of the sutured kidneys both vessels are ligated, hydronephrosis does not develop after section of the ureter.

5. In kidneys sutured together after the ligation of both vessels of one kidney profound alterations occur in the first kidney but because of the development of an arterial collateral circulation sufficient to maintain renal function and nutrition the animal survives.

6. In kidneys sutured together ligation of the vein on one part and successive ligation of the artery and vein on the opposite part cause a profound disturbance in the structure and function of the first kidney but the animal may survive and recover.

7. The kidney of the side in which both blood vessels are ligated is reduced to a fibrous nodule in the midst of which only rarely are found small and more or less well preserved zones of parenchyma. Because of the collateral circulation on this kidney instead of rapidly becoming necrotic or completely calcified undergoes a more or less slow process of cirrhosis by which in time it becomes changed to connective tissue.

8. When both of the vessels of one side and after a lapse of time the artery of the opposite side are ligated in sutured kidneys the animal may survive. This would probably be true also if the vein were ligated.

9. Animals with single blood vessels survive because of the development of collateral circulation sufficient to re-establish the functional equilibrium.

W. A. BRENNAN

**Billet H and Maisonneuve J. Splanchic Anesthesia in Nephrectomy** (*L'Anesthésie splanchique dans la néphrectomie*) *Bull. Soc. de Ch. d. Pa.* 1923, 11, 55

The authors report in detail the successful cases of nephrectomy performed under splanchnic anesthesia. There was no postoperative shock, the analgesia was complete, urine was voided promptly after the operation and recovery was uncomplicated. Anesthesia was obtained by injecting 40 to 50 ccm of 1 per cent novocaine into the splanchnic region blocking the three lowest dorsal and the three upper lumbar nerves with 50 to 80 ccm of 1 per cent novocaine and making local injection of the anesthetic along the line of the incision.

It is necessary to anesthetize the operative route the kidney, the pedicle and the adjacent layers. The renal parenchyma has few sensory nerves. Pain is easily elicited in the fibrous capsule and the mucous lined renal cavities and by traction on the pedicle.

Billet and Labadie by injecting 25 ccm of methyl chloride in a certain area on the right side in

cadavers infiltrated the perivertebral cellular tissue parallel with the kidney hilus part of the perirenal cellular tissue the upper pole of the kidney the suprarenal capsule the lower surface of Spiegel's lobe and in many cases even a portion of the diaphragm. Injections on the left side infiltrated the vertebral groove and usually the pancreas and showed a tendency to follow the descending colon. Unilateral injections on either side infiltrated the splanchnic region and the solar plexus.

The proper area for the injection is the fatty cellular strip outside the lumbar column at the juncture of the lateral and anterior surfaces of the vertebral bodies median to the kidney and the pedicle in front of the psoas muscle and behind the aorta on the left and the vena cava on the right. Even in thin persons this fatty bed is nearly 1 cm. thick.

To make the injection a Lauchet needle 12 cm. long is inserted 7 cm. from the median line on the extension of the inferior border of the twelfth rib as it to transverse the patient through and through from the side. The body of the vertebra should be reached before the needle has penetrated 9 cm. Usually a cartilage is encountered at a depth of about 5 cm. If bone is not reached at 9 cm. the needle is withdrawn and inclined a little more inward toward the vertebra. Then after the bone has been found it is slanted more forward and inserted further in contact with the bone. When this contact grazing ceases at a depth of about 9 or 10 cm. the needle is inserted 3 or 4 mm. further with great caution. After a test has shown that the needle does not withdraw blood 50 ccm. of 1 per cent novocaine containing 10 drops of 1:1000 adrenalin is injected. The point of the needle is held perfectly immovable so as not to injure the great vessel.

Anesthetization of the supraceliac plexus is independent upon perivertebral blocking of the twelfth dorsal and first and second lumbar nerves an outlying anesthesia of the upper end of the incision and possibly of its lower end and local spreading infiltration of the line of incision. In a systematic study Boppe found that the upper third of the nephrectomy incision and especially the terminal zone is innervated by fibers of the posterior perforating branches of the tenth, ninth and sometimes the eighth intercostal nerves.

Chevassu employs local renal anesthesia only excepting his reasons being as follows.

As splanchnic anesthesia is still uncertain it may be necessary to finish under general anesthesia an operation intended to be performed under local anesthesia.

Local anesthesia is eliminated chiefly by the kidney. The relatively large dose necessary for renal anesthesia may become toxic and endanger the function of the remaining kidney. The literature records many deaths from splanchnic anesthesia. Von Haber has seen serious collapse.

3. Injection of one side may infiltrate the entire solar plexus and exert a temporary effect on the good kidney.

4. In one case of death from splanchnic anesthesia Heller found only a pricking of the adrenal. As a rule the adrenal is infiltrated and it is impossible to prevent puncture with certainty.

5. Perinephritic sclerosis hinders local infiltration.

6. When there is serious disturbance of renal function only an exploration decapsulation or incision for pyonephrosis is indicated. These operations can be performed very quickly under general anesthesia induced with a weak dose (3 ccm.) of ethyl chloride.

WALTER C. BURKET, M.D.

#### J. H. A. Postoperative Renal Hemorrhage S. R. G. Y. & Obst. 1923, xx, 1, 652

Following a review of the literature on the pathogenesis and treatment of hemorrhage following nephrotomy the author states that secondary hemorrhage is due in the main to the cutting of intrarenal vessels and infection causing the breaking down of the renal suture and the detachment of the clot. To prevent this he recommends the use of several shaped sutures including the capsule externally and the wall of the pelvis internally. These should be placed in two separate series one on each side of the nephrotomy wound close to its edges and parallel with them. The divided kidney tissues should then be approximated in the usual manner and fixed by two or more sutures to the abdominal wall. The freedom from hemorrhage more than compensates for the loss of a small amount of kidney tissue due to compression.

The results in a small series of cases have been very satisfactory. J. H. A. CHETHAM, M.D.

#### BLADDER URETHRA AND PENIS

L. A. S. C. Myoplastic Operations in the Treatment of Urinary Incontinence in the Female  
(Le p. a. o. m. p. l. t. h. e. l. l. a. u. r. a. d. e. l. l. c. n. t. i. n. e. n. c. e. )  
348

The Wertheim Schauta operation and the Solms round ligament plastic have been discarded. The first could be applied only in the cases of women who had reached the menopause and were free from morbid processes of the uterus. The Solms method is easily executed but does not give solidity. The L. A. S. C. operation can be done only if the fascia of the levator ani is strong (which is not always the case in multiparous women) and when joined is able to resist the pressure from above.

For the treatment of a case which he reports the author devised a new method of myoplasty which he claims is very simple and much less traumatizing than other methods. The technique is as follows.

Longitudinal incisions are made on the anterior vaginal wall two vaginal strips are dissected and the urethra is dissected as far as the neck of the bladder. The skin of the thighs is then incised for about 15 cm. over the tendon of the gracilis muscle beginning at its pubic insertion the gracilis muscle is exposed followed to its insertion separated from

its fascia and sectioned distally at about 12 cm from its insertion, being left attached to the pubes by its tendon. The two muscle strips are drawn through the incisions in the vaginal wall and sutured together so as to raise the neck of the bladder as much as possible. The muscle strips are then covered with skin strips taken from the region and all wound is closed.

This operation proved simple and quick and was followed by a smooth convalescence. Shortly after the patient left the hospital she was able to retain urine for three hours.

Detachment of the muscle strips from the gracilis is a much less serious operation than removal of the anterior aponeurosis of the rectus muscle. The nerves are sectioned but the nutrition of the strips is not disturbed.

The gradual rather than immediate return to normal continence noted by the author was observed also by Stoeckel. The reason must be sought in the reduction of bladder capacity and the necessity for frequent evacuation. With continence the bladder gradually reacquires its normal distensibility, the intervals between evacuations then becoming longer.

W. A. BRENNAN

#### Johnson F. P. Diverticula and Cyst of the Urethra. *J. U. I.* 1933, 95

Urethral cysts are congenital or acquired. According to Watt, the acquired cysts are due to dilatation of the urethra from urethral obstruction by calculus or stricture, perforation of the urethra by abscesses or cysts rupturing into the urethra. With regard to the origin of congenital cysts, Johnson states that in microscopic studies of the fetus he found the diverticulum or cyst in one case to be a proliferative growth of the cells on the under surface of the urethra. In two other cases the origin was a dilatation of the ducts of Cowper's glands.

Johnson reports an interesting case of a cyst of the duct of Cowper's gland, the largest of the kind on record. The patient, a 2-year-old negro laborer, presented himself with an intrascrotal tumor the size of a grape fruit, which was fluctuant but not light transmitting. The testicles were of normal size, easily palpable and found on either side of the cystic mass slightly above the midline. The urine was uninfected and the physical examination negative. The tumor had begun its growth in early childhood.

In the excision of the growth both sacs of the tunica vaginalis testis which were closely adherent to the cyst were found to end in a small pedicle extending into the posterior part of the bulbous urethra behind the curvature and to the left of the midline. The conclusion was drawn that the tumor had its origin in the duct of Cowper's gland on the left side.

The patient was discharged from the hospital after three days after the operation.

GILBERT J. THOMAS, M.D.

## GENITAL ORGANS

### Sutherland H. and Lin H. E. A. The Pathology of Neoplasms of the Testis. *B. J. S.* 1933, 223

Of forty-five testicular neoplasms seven occurred in imperfectly descended testes. One case of malignancy is found in every 1,500 admissions to the male surgical service. In malignancy teratoma appears to be of importance. The undescended testis which is atrophic and poorly developed exhibits well marked pathologic changes and is therefore predisposed to malignancy.

A tumor showing macroscopically multiple cysts separated by fibrous tissue is probably a teratoma, especially if normal gland tissue is found spread over or at one pole of the cystic area. An encephaloid tumor suggests a spermatocytoma. Sarcoma appears as a firm homogeneous solid growth with localized hemorrhagic extravasation.

The benign tumors of the testis are teratoma and mixed cell tumors. The malignant tumors are carcinoma including spermatocell carcinoma, spermatocytoma and chorion epithelioma and sarcoma.

The most common malignant tumor, the spermatocytoma, arises in the germinal epithelium. Sarcoma is extremely rare, most of the growths so called being definitely epithelial in type and more correctly classified as spermatocytoma. The carcinoma of the spermatocell type is frequently found in the testis; it probably arises from malignant metaplasia of the epithelial or hypoblastic cell elements of a teratoma. Teratoma although histologically benign may form metastases and is extremely liable to malignant change. All testicular tumors are potentially malignant and therefore should be surgically removed.

LOUIS NEUWEIT, M.D.

### Kretschmer H. L. and Alexander J. C. The Surgical Pathology of Acute and Chronic Epididymitis. *J. U. I.* 1933, 335

While the surgical treatment of acute epididymitis dates back to antiquity, very little has been reported concerning the surgical pathology of this or the chronic condition.

The uterus fortresses retreated by local applications of the hot wet dressings, rest in bed, support of the scrotum and hot sitz baths but operation was performed immediately if fluctuation was noted. Chronic cases were operated upon if the pain persisted and the epididymis remained tender and hard.

Of the twenty-six cases of acute epididymitis twenty-five were due to gonorrhea, one was caused by teratoma and one was the result of a catheterization in a case of tabes. The histological picture was the same in all. In very severe cases the scrotum was edematous and swollen. In twenty-nine cases fluid was present. Forty-six cases of testis found in eight cases and gonorrhea was isolated in several. In some instances the space between the layers of the tunica vaginalis was obliterated. In

ten cases pus was found in the tail of the epididymis. In twenty two the cord was thickened.

A leucocytic invasion was demonstrated in both the interstitial tissue and the tubules. In eighteen of the twenty nine epididymes (three bilateral cases) fibroblasts were present and in sixteen cases there was hyaline degeneration. All of the cases showed oedema of the fibrous connective tissue and some of them an excessive deposit of fibrin. Engorged new capillaries and enlarged blood vessels were found. In certain areas diapedesis had occurred.

Abscesses involving the tubules and intertubular tissue were composed of polymorphonuclear leucocytes or lymphocytes or both. Very few tubules were normal; the others showed changes ranging from a slight oedema to complete destruction. In twenty seven epididymes leucocytes and plasma cells were found. Many tubules were closed by oedema or plugs of leucocytes. Peritubular collections of leucocytes were discovered in nineteen cases. A few cases showed an increase in the eosinophiles in the blood and later in the sections. In one case of traumatic epididymitis the tubules were fairly normal.

In the eleven cases of chronic epididymitis in which the duration of the condition ranged from six months to sixteen years treatment was sought because of pain. In four of the nine which were not due to gonorrhoea the condition was associated with chronic pyelitis and cystitis in one with cystitis following prostatectomy in one with carcinoma of the prostate and in one with chronic prostatitis and seminal vesiculitis.

The predominating feature was the proliferation of the fibrous connective tissue. Often this was associated with oedema. The walls of the blood vessels were thickened. In eight cases engorgement was noted. Abscesses in the intertubular tissue were found in six cases and minute abscesses of the tubular walls an epithelium in eight cases. Lymphocytes predominated. Fibrin was deposited to a marked extent in five cases. Intertubular collections of leucocytes were present in only six cases.

The tubules showed various conditions including oedema and degeneration, a change in the epithelium and a thickening and fibrosis of the tubular walls. Some of the tubules were open while others were closed by the contraction of the walls, oedema or plugs of leucocytes and debris. Practically all showed irreparable damage.

There was no apparent histological difference between the chronic non-venereal cases and those of gonorrhoeal origin. CLAUD D. ICKRELL, M.D.

Dillon J. R. and Blaisdell F. E. *Surgical Pathology of the Seminal Vesicles*. *J. Urol.* 9: 3, 1933.

Lloyd in 1889 reported that he had drained the seminal vesicles through a perineal incision. He compared inflammation of the seminal vesicles to inflammation of the fallopian tubes. Robinson in 1892 contrasted the healthy semen sacs of the lower

animals to the diseased seminal vesicles which he found in dissecting the human subject. In 1904 Fuller called attention to chronic suppuration in relation to systemic symptom.

The authors have divided the macroscopic changes into two types viz. those which involve the intrinsic structures and those which involve the extrinsic processes. The indications for operation are as follows:

- 1 Cases in which there is stenosis of the ejaculatory ducts or pressure on the ducts by an enlarged prostate and the vesicles are large, thin walled and cystic.

- 2 Cases in which in addition to the changes mentioned show extrinsic changes ranging from oedema of the perivesicular tissues to dense scar tissue.

- 3 Cases in which only the intrinsic structures are involved and the vesicles are thickened, have very little secreting capacity and are easily separated from the surrounding tissues. Excision of the vesicles is indicated.

- 4 Cases showing the last stages of inflammation. The vesicles are thickened as in Group 3 and in some instances an atrophic band enclosed in dense scar tissue is present. The bladder, peritoneum, ureters and vasa are pulled into closer relationship. Dissection of the vesicles is difficult. The same vesicle may contain any of the intrinsic changes mentioned and those of the third type proximal to the ejaculatory ducts. In the author's cases drainage gave very poor results.

In the majority of the cases no spermatozoa were found. Thickening and stiffening of a vesicle and absence of gelatinous secretion after massage indicate a pathological lesion. A perivesiculitis may persist after a vesiculitis has healed. If the perivesiculitis has not reached the stage of fibrosis and the vesicles can be stripped, non-operative treatment usually gives good results.

In the first two groups microscopic examination shows the secreting folds flattened or shortened and the lumen filled with a cellular secretion. The columnar epithelium is flattened. In the hydro-spermato-cystic type the secreting folds show in places a fibrous thickening. The lumen is filled with a cellular and vacuolated secretion attached by indefinite fibrils. Round cell infiltration may be present.

In the non-cystic types there is a round cell infiltration of the mucous folds with loss of epithelium and the formation of granulation tissue at their extremities. These may join and shut off the underlying recesses. Fibrous thickening in the walls may be found and there may be infiltration by round and plasma cells and fibroblasts. The capillaries are dilated and engorged and a haemorrhagic exudate may be present. The same vesicle may vary from nearly normal lobules to lobules obliterated by fibrosis and compression.

The danger of the formation of adhesions from infection, trauma, haemorrhage and epididymitis following vasotomy or dilatation of the ejaculatory

ducts should be born in mind in selecting cases for treatment. Operation has often improved the sexual capacity.

In conclusion the authors bring out the following important points:

1. The signs and symptoms of vesiculitis and prostaticitis should be more carefully studied so that they may be of aid in the selected treatment.

2. Vasotomy and dilatation of the ejaculatory ducts are important aids in carefully selected cases.

3. In operative cases vesiculectomy is to be preferred to vesiculotomy because of the impossibility of draining all of the infected recesses.

CLAUDE D. PICKERELL, M.D.

Macht D. J. and Teagarden E. J. Jr. *Rejuvenation Experiments with Vas Ligation in Rats*  
J. U. S. 93: 4

In a series of single rats vas ligation caused little or no change in cerebrospinal activity or eight but was followed by a definite though transient improvement in muscular coordination, muscular efficiency, and general appearance. These experiments were checked by a control series. In the authors' opinion the results seemed to warrant further investigation of the subject.

JOHN G. CHLETHAM, M.D.

### MISCELLANEOUS

Barnes J. D. *The Urological Aspects of Hemophilia*  
B. M. & S. J. 93: 14, 486

The author reports a case of hematuria accompanied by a perineal hematoma in a hemophilic and abstracts the histories of seven cases of hemophilia with definite urinary tract symptoms observed at the Massachusetts General Hospital.

Barnes says that of a man who entered the Massachusetts General Hospital for the treatment of hematuria in 1912, again in 1919 and again in March 1922. At one time the bleed became so severe that it was necessary to open the bladder to remove the blood clots. Later, tumor probably a perineal hematoma developed around the left kidney.

As far back as the records are of value, only forty-two cases have been admitted to the Massachusetts General Hospital for hemophilia. All of the subjects were males. Seven gave a definite history of urinary trouble or had symptoms referable to the urinary tract. The condition occurred between the fifth and fiftieth years of life but in due case was highest during early adult life.

A review of the literature revealed few reports of hemophilic urinary symptoms. Perineal hematoma is mentioned more often than hematuria. One writer gives the symptoms: sudden severe pain in the kidney region which is colicky and intermittent or continuous vomiting (not uncommon), fever, pus in the urine coming on gradually and possibly causing uremia because of its effect on the kidneys and sometimes tumor. The author writes concerning

on the absence of hematuria with perineal hematoma.

The differential diagnosis may be difficult. Operative interference is rarely necessary. The services of a practitioner who is acquainted with the pathology of the blood should be secured as soon as possible.

GILBERT J. THOMAS, M.D.

Pelouze P. S., Lour H. R., Scott G. O. and Othman A. *Symposium on the Treatment of Gonorrhea*  
Therap. G. 93: 3, 685

PELOUZE emphasizes the importance of use of solution of the proper strength and the utmost gentleness in their application. The intra-urethral pressure should never be much greater than that during urination. Great pressure will spread the disease and cause complications.

If only the anterior urethra is infected the posterior urethra should not be treated.

Involvement of the posterior urethra is often without marked subjective symptoms and therefore may easily escape notice unless it is watched for very carefully.

During an acute posterior urethritis local treatment should be used.

Instruments which should be used in the acutely inflamed urethra only for the relief of retention of urine. As long as the gonococcus is present they have a place in the treatment of this disease only in the very occasional case of sluggish gonorrhea in which they are used to cause a more acute condition and thereby stimulate the tissue reaction.

After the gonococcus has disappeared sounds or dilatation employed to break up and cause the re-epithelialization of the urethra in order to prevent strictures. This should be performed before the patient is discharged so that as they may serve to bring light at last to gonococcal infection which would otherwise be overlooked.

No case of posterior gonorrhea should be pronounced cured until it is proved that the prostate does not harbor the gonococcus.

Massaging of the inflamed prostate to cause abscesses and a permanent damage to the prostate gland.

Massage of the prostate which will harbor the gonococcus will inevitably be followed by a recurrence of the urethral discharge and the gonorrhea occurs.

The patient should refrain from sexual intercourse throughout the course of the treatment.

Lotze draws the following conclusions as to the prophylaxis and treatment of acute gonorrhea.

1. Prevention rather than treatment is the key-note to the problem. This necessitates the establishment of prophylactic statistics in the various central zones of cities.

2. Early general treatment shortens the period of the attack lessens the severity and prevents complications.

3 Of the drug for internal administration alkaline diuretics are the most important. The patient should be given also large quantities of water.

4 Local treatment in the form of irrigations should not be resorted to until about seventy-two hours after the onset of the acute attack. At first the anterior urethra should be irrigated and in the stage of decline the posterior urethra. The chief effects of the local treatment are the inhibition of the organisms and the flushing out of the urethra.

SCOTT and PEARSON use the following method in determining a cure in cases of gonorrhoea.

If the clinical signs remain absent the patient is allowed a week's rest from treatment and is directed to present himself for examination in the morning before he has emptied his bladder of the night collection of urine. A smear is made of any urethral secretions present stained by Gram's method and examined for the gonococcus.

The urine in two glasses is examined macroscopically. If it is clear and free from shreds it is centrifugalized and smears are made from the sediment. The smears are stained with methylene blue and Gram's stain. The prostatic vesicles and Cowper's glands are massaged and smears of the secretion are stained with methylene blue.

The anterior urethra is examined with the urethroscope to ascertain the condition of the mucous membrane and whether folliculitis is present or not.

Cultures are made from the urethral secretions the material expressed from the prostate and vesicles and the urine. A specimen of blood is taken for a gonorrhoeal complement fixation test.

If all examinations prove negative the patient is instructed to live his ordinary life but to avoid alcohol and sexual intercourse.

At the end of three weeks he again presents himself in the morning before emptying his bladder. The urethra is gently milked and at least two smears are made of any secretion expressed. Cultures are made whenever smears are taken. The urine is then passed into two glasses and the bladder filled with warm boric solution. The prostatic vesicle and Cowper's glands are thoroughly massaged and at least two smears are made from the expressed secretion. The bladder is emptied into a third glass and the anterior urethra is examined with the urethroscope or stretched by a dilator or a large sound. When a sound is used the urethra is gently massaged against it. The patient is then given an intramuscular injection of three million killed gonococci and if the previous complement fixation test was positive a specimen of blood is taken for a second test. The patient is told to report again the following morning before he has passed his urine.

In the study of the urethral smears one slide is stained with methylene blue. If no pus or organisms are present the second slide is discarded. If either pus or organisms are found the second slide is stained with Gram's stain and a careful search is made for Gram-negative diplococci.

If the three samples of urine are macroscopically free from haziness, mucous cloud, shreds and filaments they are discarded. When any specimen is not perfectly clear it is centrifugalized and two smears are made from the sediment. In making these smears it has been found technically easier to use a fine pipette than a platinum loop. The smears are subjected to the same staining procedures as the urethral smear.

One prostatic vesicular smear is stained with methylene blue and examined for pus and organisms. If there are more than two pus cells per field the prostate is still infected and requires further treatment even though the gonococcus may not be the infecting organism. If organisms are found the second smear is stained with Gram's stain and a search is made for Gram-negative diplococci.

On the second day smears are made from any urethral secretions present and from the centrifugalized urine and examined as before. A second intramuscular injection of five million killed gonococci is then given.

Urinary and urethral smears are made on the third and fourth days.

On the fifth day urinary, urethral and prostatic vesicular smears are made. A urethroscopic examination is made or the canal dilated with a large sound or a dilator and the urethra and bladder are irrigated with a 1:10,000 solution of silver nitrate.

Urinary and urethral smears are made on the sixth day.

If all tests are negative for the gonococcus the patient may be considered non-infectious.

If the second complement fixation reaction is positive the entire examination is repeated a month or six weeks later.

ROTH finds no fixed rule for the treatment of acute gonorrhoea in the male. In acute anterior gonorrhoea hot sitz baths combat the anterior urethritis and often prevent its extension into the posterior urethra. Gentleness as regards the use of non-irritating solutions and irrigations and the frequency of treatment is essential. A 1:5,000 solution of acriflavine is best for irrigations and a 1:8,000 solution for urethral injections.

Local treatment aggravates acute posterior complications.

The most conservative treatment for epididymitis is epididymotomy. LOUIS GROSS, M.D.



# SURGERY OF THE BONES, JOINTS, MUSCLES TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Dawson J W and Struthers J W Generalized Osteitis Fibrosa with a Parathyroid Tumor and Metastatic Calcification In *Ludwig's Critical Discussion of the Pathological Processes Underlying Osseous Dystrophies* Ed by J W J 9 3 15 22 42

The authors describe the clinical picture of a case of generalized osteitis fibrosa associated with a parathyroid tumor and multiple calcareous deposits comparing the underlying process in this condition with other bone dystrophies.

The histologic development as shown in their cases begins with an irregular erosion of the haversian spaces by halteres. The endosteal cells and proliferated endothelial cells fuse to form giant osteoclasts which actively resorb the old bone by lacunar erosion. The large irregular spaces ultimately formed by this erosion are filled by a capillary and cellular network which proliferates until the entire bone with the exception of small isolated islets has become replaced by fibrous and vascular tissue. The bone marrow also undergoes fibrous and vascular tissue substitution.

When the entire bone has become removed by fibrous tissue substitution new bone is laid down by metaplasia. The connective tissue cell are transformed into bone cells and their fibrils into osseous mucin tissue. This process progressing until the bone has become replaced by a wide meshed network of osseous mucin tissue in the spaces of which the original vascular connective tissue can be seen. On the borders of this bone the connective tissue cells line up and form an epithelial layer of osteoblasts which lay down new bone by apposition. These areas gradually become ossified and a new entirely new irregular haversian system showing osteoblastic and osteolytic activity is formed.

Hæmorrhages result from rupture of capillary loops due to slight injury and the hæmorrhagic areas may become surrounded by groups of giant cells and cell proliferation which make them practically indistinguishable from the so called myeloid sarcomata. Small cysts may arise as the result of circulatory disturbances or retraction of the fibrous or osseous mucin tissue.

In the case reported the parathyroid glands were normal. The tumor however was diagnosed as a simple papillary adenoma composed of modified principal cells. The calcareous deposits occurred in those areas in which the tissue reaction was quite alkaline—the lungs stomach and kidneys—and was due probably to the precipitation of calcium in a body fluid too alkaline to hold it in solution.

The fundamental histologic changes of generalized osteitis fibrosa are (1) bone removal by halteres lacunar erosion and resorption about capillary loops (2) vascularization (3) fibrous tissue substitution by reversion of the cells of the haversian system endosteum and bone cells to a mesenchymal type (4) new bone formation by metaplasia and apposition.

The course of the disease is not uniform and progressive. Remissions may occur the continuation for the variation in the histological picture.

Rickets osteomalacia osteitis deformans and osteitis fibrosa have in common a disturbance between bone resorption and apposition associated with a dystrophic process. In rickets there is an irregular and exaggerated cartilage formation the mesenchymal cells differentiate into fibroblasts instead of osteoblasts and osteoclasts and form osteoid tissue which is later removed by thrypsis a process allied to halteres. In osteomalacia there is removal of the lime salts with resorption of the decalcified tissue followed by apposition of osteoid tissue. In osteitis deformans the picture is much the same as that of osteitis fibrosa except for the presence in the latter of giant cell areas and cysts which the authors believe are evidences in the process and due to the greater tissue reaction. Leontias ossea is regarded as a similar process limited to the face.

Localized osteitis fibrosa presents no histological differences from the generalized condition and has a picture strikingly like that long designated as myeloma myeloid sarcoma or giant cell sarcoma. In spite of morphological resemblances the authors believe that there are solid and cystic lesions due to neoplastic conditions which are distinct from dystrophic processes which they resemble. They suggest that the nomenclature of bone tumors be revised that sarcoma be applied only to those malignant osteogenic sarcomata of central or peripheral origin and that benign bone tumors be known as benign giant cell tumors as suggested by Ewing.

The authors urge that the changes found in osteitis fibrosa are due to the action of some unknown causal factor (toxic infective) exerted primarily on the bone cells which causes them to lose the control over calcium metabolism given them by the parathyroid hormone. M L M M D

Bloodgood J C Bone Tumors Benign Bone Cysts Due to Central Osteitis Fibrosa of the Unhealed Latent Type *J Rad et* 9 3 345

On the basis of a study of 10 cases of bone cysts Bloodgood draws conclusions particularly with regard to the diagnosis and treatment with regard to the diagnosis and treatment with regard to

to the etiology he offers no new theory stating only that clinically the condition is a benign lesion and pathologically is a form of chronic inflammation.

He divides the cases clinically into three groups. Group 1 are those of patients under 15 years of age with a pathological fracture in the shaft of a long bone at the site of a cyst. The treatment in these should be non-operative and should be followed by X-ray observation at short intervals. The rapidity of complete ossification in the ordinary bone cyst after fracture is dependent upon the extent of the fracture and the amount of comminution.

The second group of cases are those in which the cyst is found accidentally or during X-ray study for trauma, pain or swelling. If subsequent X-ray examinations show slow or imperfect ossification in this group a bone crushing operation with excision of the cyst wall is indicated.

Group 3 are the cases of patients over 15 years of age in whom other central bone lesions cannot be excluded. If fracture occurs operation should not be performed unless it is indicated by subsequent X-ray study if fracture does not occur an exploratory operation should be done and suitable treatment given according to the pathology found.

Bloodgood emphasizes the point that in cases of bone cyst the most complete healing results in the shortest time following a comminuted fracture spontaneous or operative (crushing of the bone shell). He reports six cases. CILSTER C SCHNEIDE M D

**Tavernier Late Recurrent Osteosarcoma Radiotherapy Secondary Excision of the Tumor Which Appeared To Have Been Sterilized**  
(Résumé de l'histoire d'un tumeur sarcomateuse traitée par la radiothérapie, puis réapparaissant et nécessitant une nouvelle excision.)  
L'v h 1933 x 373

The patient a man 66 years of age was operated upon early in 1916 for the removal of a painful tumor of the right arm. In December 1916 the upper end of the right arm showed a fusiform swelling which pushed back the vessels and appeared to infiltrate the operative scar. The X-ray revealed erosion of the humerus at the junction of the epiphysis and the diaphysis. At operation the right shoulder was disarticulated. Pathologically the tumor was a periosteal osteosarcoma of the humerus.

The patient's condition remained excellent until the end of 1922 when a hard movable tumor the size of a large nut appeared on the anterior thoracic wall near the disarticulation scar. Over it was an abundant superficial venous circulation. The pain was rather intense. The tumor mass was distinctly visible in the X-ray plate. Radiotherapy in April and May 1917 relieved the pain caused by the appearance of the collateral circulation and decreased the size of the tumor by two thirds. Ten additional treatments given in July and seven in September and October caused no noticeable change.

In December when the patient finally consented to operation the tumor was removed with a wide

margin and both pectoral muscles. It was found to be formed throughout by a fatty mass with fibrous prolongations and to show not the least sign of sarcomatous tissue. Although there had been no histological study of the recurrence before radiation the original growth had been so studied. In the author's opinion the recurrence was destroyed by the radiotherapy.

This case is noteworthy also because the patient has survived six years since excision of the periosteal sarcoma. Another of the author's patients who had this condition is living four years after operation. In thirty-two surgically treated cases reviewed by Kocher in 1906 there were four three year survivals. Altschul in 1910 found none in twenty-three cases. Meyerding reported survival of more than three years in 22 per cent of the cases he reviewed. Of 454 patients whose case reports were collected by Codman only four were well at the end of five years.

WALTER C BURKET M D

**Mueller W The Effect of the Roentgen Rays on the Bones** (Der Einfluss der Röntgenstrahlen auf den Knochen) Munch med Wochenschr 1923 lxx 68

The effect of the roentgen ray is exerted chiefly on cell undergoing mitosis. Therefore in finished bone no effect is to be expected even following intense application of the rays but in the epiphyseal lines in which the cells are in active mitosis the effect is marked. Great sensibility to the rays in cartilaginous zones of growth has been demonstrated experimentally.

It has been assumed that the rays exert a stimulating or an inhibiting effect according to their strength. The growth-inhibiting effect has been demonstrated by numerous experiments (Perthes, Recumier, Iselin, Dieterle, Foersterling, Segale and Krukenberg). The growth-inhibiting influence of large doses cannot be doubted but to date a growth-stimulating effect has not been demonstrated in normal and growing bones even though it is possible theoretically.

With regard to the effect of the roentgen rays on bone regeneration (fractures) opinions differ. Salvetti, Cluzet and Dubrenil reported an inhibiting action on callus formation. From a number of experiments on rabbits the author concluded that there was little appreciable difference between rayed and unrayed bone and that if anything the picture suggested an inhibition of regeneration even when small doses were used.

VORSCHUETZ (Z)

**Pitzen P So Called Obstetrical Paralysis of the Arm** (Ueber die sogenannte Entbindungslähmung des Arms) Zisch f il p Ch 1933 30

Since the time of Duchenne and Erb the term obstetrical paralysis has been applied to paralysis caused by injury during labor to those muscles which according to the view of Erb are electrically excitable viz the deltoid, biceps, internal brachial



explained on the basis of the anatomical and physiological peculiarities of the extensors of the finger especially the dorsal aponeurosis. This assumption he believes is confirmed by the functional defects noted in a case of isolated severance of the extensor tendon on the dorsum of the proximal joint.

In conclusion Hauck suggests that in case of ulnar paralysis extension of the terminal phalanx might be facilitated by a prosthesis holding the hand and proximal phalanx of the finger in slight flexion during dorsal motion. HICKLE BROCK (7)

**Aubry and Pitzen. The Roentgen Diagnosis of Spondylitic Abscess (Zur Diagnose des spondylitischen Abszesses im Röntgenbild). Ztsch f. Rheum. Ch. 923, 1, 47.**

Spondylitic abscess of the cervical vertebrae can be recognized only in lateral pictures. Tuberculous and osteomyelitic abscesses cannot be differentiated roentgenologically. Tumors and gummatous nodes increase the transparency of the shadows of the vertebral body.

In the thoracic portion of the spine the various types are formed as the result of the spread of the disease and the resistance of the surrounding tissues. The differentiation of the shadows of the thymus, hilus glands and lung tumors is not difficult. Except for a slight arch over the third and fourth thoracic vertebrae the normal aorta shadow is straight and extends downward to the left of the spine. The shadows of abscesses are seen on both sides and unlike the shadow of the aorta do not become less dense farther down.

In the abdominal cavity abscesses usually spread in the iliopectus. As compared with the shadow of an aneurism and that of the right auricle the shadow of the abscess is denser.

An intensification of the shadow, which the authors have noted in tuberculosis, they ascribe to compression of the bone which is relatively poor in calcium. WASSERTEL, DIERER (2).

**Wohlgemuth. K. acute Osteomyelitis of the Spine (Eintrag aus Klinik d. k. u. Wirtz). (Ztsch. f. Rheum. Ch. 933, 1, 554.)**

The vertebrae are involved in only 1 per cent of cases of osteomyelitis (Hahn). Volkmann collected 87 heavy cases of osteomyelitis of the spine and Stahl eleven others and added three of his own. Mechniescu, Braunschweig, Roenigk, Duden and Kessler added one case each. Fraenkel reported four cases. To these 110 cases Wohlgemuth adds three more.

CASE 1 reported by the author was that of a 13-year-old girl. Three weeks before the patient entered the hospital she fell during gymnastic exercises and thereafter complained of pain in the sacral region. At examination on the spinal processes of the lower lumbar and upper sacral vertebrae were found tender to percussion. The temperature was 39 degrees C. As the X-ray showed no sign of fracture an acute infectious disease was suspected.

During the next few days swelling of the joints appeared. The leucocyte count was 10,000 and the erythrocyte count 5,000,000. Culture of the blood yielded staphylococci. Death occurred on the fifth day after the patient's admission to the hospital.

Autopsy revealed complete suppurative necrosis of lumbar vertebrae in abscess the size of a fist in the soft parts which communicated with the spinal canal and pus in the spinal canal as far as the level of the seventh thoracic vertebra. Transverse section of the spinal cord showed nothing abnormal. The spleen was septic. Both kidneys showed numerous small suppurative abscesses.

CASE 2 was that of a 44-year-old man. Fourteen days before the patient's admission to the hospital he had had a whitlow induced by a physician. Two days before his admission pain began in the cervical region. Examination revealed stiffness of the neck and pain on attempts to rotate the head. A roentgenogram of the spinal column was negative. The tonsils and pharynx were red and filled with pus. Five days later paresis of both arms developed. The leucocyte count was 14,000. Two days later a longitudinal incision in the left side of the neck after exposure of the cervical spinal column yielded no pus. Two weeks later a roentgenogram of the fifth and sixth cervical vertebrae showed a blurred translucent outline. At the end of 1 month there was marked edema of the right posterior velum palati as far as the entrance to the larynx. Puncture yielded no result. Death resulted one week later.

Autopsy revealed osteomyelitis of the fourth and fifth cervical vertebrae and a prevertebral abscess.

CASE 3 was that of a boy 19 years of age. Fourteen days before the patient entered the hospital he had an attack of severe headache and ten days previously he fell while carrying coal striking the ischium. Since then he had had pain in the back. May 21 he was admitted to the hospital in stupor. His temperature was 39.9 degrees C. and his pulse 110. The abdomen was distended and the bladder was at the level of the umbilicus. Two thousand cubic centimeters of urine were withdrawn by catheter. The leucocyte count was 20,000. Staphylococci were found in the urine. Intravenous injections of rivanol were followed at first by improvement but later the condition became worse. Operation performed June 8 showed osteomyelitis of the fifth lumbar vertebra. The pus contained staphylococcus aureus. Death occurred June 2.

Osteomyelitis of the spine like osteomyelitis of other parts of the skeleton is especially a disease of youth. The lumbar vertebrae are attacked most frequently, the thoracic vertebrae next most frequently and the cervical least often.

In the etiology the chief roles are played by (1) previous infection which floods the body with bacteria and (2) some factor—usually trauma—which causes the bacteria to lodge in the spinal column. Pyogenic organisms are present in the spinal cord in many general and local infections but may cause no particular damage.

The diagnosis is very difficult often impossible. The roentgen picture is self-evident. In the differential diagnosis is general infection, must be considered. The leucocyte increase in osteomyelitis differentiates it from typhoid. *ИЗДАНИЕ (L)*

Parker, C. H. Actinomycosis and Blastomycosis of the Spine. *J. B. - J. 13 1923 759*

In seven cases of actinomycosis of the spine reported in the literature and one unreported case, none of the following conditions were found: at autopsies, none of the vertebral bodies contained general infection; the bodies and spinous processes, yellow abscesses formed involving the bone cavities filled with granulations; none of periosteal abscesses; none of the abscesses along the spine; and deformities of the spine depending on the amount of collapse and fracture of the vertebral bodies. From one to eight vertebrae were affected and the lesion occurred at various points between the upper thoracic vertebrae and the sacrum.

The author reports a case of actinomycosis of the spine in a 22-year-old man who consulted him because of chronic purulent discharge from the site of an appendectomy performed six months previously. The abscess was drained but death occurred six weeks later. A few days before death there was loss of control of the lower extremities but no paralysis in the back was noted.

The pathologist reports that abscesses surrounding the spine and extending down to the inguinal region. The sides of the bodies and the transverse processes of the vertebrae were extensively eroded. Sagittal section showed the erosion process extending through the bodies and large granulating areas penetrating into the dural canal. Microscopic examination demonstrated typical actinomycotic changes. Occasional colonies of ray fungi were found surrounded by an inflammatory zone.

The treatment of actinomycosis consists in the administration of large doses of potassium iodide and operative treatment of the abscesses and the osteomyelitis.

The prognosis is grave as the spinal infection is secondary to a focus elsewhere.

A case of blastomycosis of the spine reported by the author was that of a man 27 years of age with a history of severe pain in the stomach extending around the chest, the back and almost constant rigidity in the lumbar region and to the left of the tenth dorsal vertebra. The X-ray showed a dense shadow, posterior to the fifth and sixth dorsal vertebra but little bone change. As tuberculosis of the spine was suspected, but it was applied and the patient placed in the horizontal position.

Two months later the condition had become worse with severe pain about the chest at the fourth rib and paralysis and loss of sensation below the umbilicus. The X-ray then showed marked mottling of the fourth dorsal vertebra and fracture of the neck of the right fourth rib. The patient died December 9, 1918.

Autopsy revealed to the left of the fourth fifth and sixth dorsal vertebrae an abscess containing grayish pus. The infection had caused extensive destruction of the vertebral bodies, fracture of the right and left fourth ribs and pressure necrosis of the spinal cord. Numerous hard nodules scattered through the lungs proved to be blastomycetes.

FRANK C. MURPHY, M.D.

Waldstroem, H. The Essential Type of Coxa Plana (La forme d'essentielle de la coxa plana). *L. 1913 397*

The diagnosis of essential coxa plana may be made with certainty only during the period of evolution. The author re-examined twenty-two patients, none of whom had reached the age of 20 years. While the deformity varies in degree, flattening of the head of the neck and acetabulum is common to all cases.

From the point of view of deformity, Waldstroem divides the essential type of coxa plana into the following three groups:

Group 1. The head and neck of the femur are separated from one another and from the greater trochanter.

Group 2. The antero-superior part of the head of the femur is close to the greater trochanter. This position of the head is viewed from the side appears greatly enlarged and extends outside the articulation. The upper portion of the neck is not visible.

Group 3. The articular surface of the head is rough and more or less excavated. The upper pole of the head is conical and ordinarily situated lower than the greater trochanter.

LOUIS DAVIS, M.D.

Nussbaum, A. The Blood Vessels of the Lower End of the Femur and Their Relation to Pathology (Über die Gefässverhältnisse der unteren Enden der Femora bei pathologischen Veränderungen). *B. 1913 45*

The work is based upon a series of experiments carried out by the author on anatomical specimens prepared in a special manner as living animals. In the first part the author discusses the anatomical relations of the vascular supply of the lower end of the femur at the knee joint. It is found that when the knee is bent the popliteal artery moves backward and considerable displacement of the artery in operations and dislocations from the front through the flexed joint there is relatively little danger of injuring this vessel if the relation in the hollow of the knee is normal.

The knee artery arising from the popliteal artery shows extensive variations in their course and anatomical relations. They run into no anastomoses with the lower arteries of the knee with the exception of the articular genua. Connections occur only through the articular branches and these seem to be equally important with the larger bone arteries. In its terminal portion which runs parallel to the cartilage-covered surfaces of the articular plexus of the

bone lies under the synovial membrane covering the bony portions. There are very few microscopically visible connections between the vessels of this membrane and the finer bone vessels a factor which appears to be of importance in the movement of the synovial membrane on the bone. Consequently the vessels in the lower end of the femur have no relation to those of the joint capsule except their common origin. The author does not agree with the views of Lange and Schwalbe as to the vascular supply in this region. The vascular trunks in the spongiosa which Lever calls the metaphyseal arteries. Nussbaum also found arranged according to the end artery type whether this remains the case at a later age he was unable to determine.

With regard to the vascular supply of the epiphysis as compared with the metaphyseal and diaphyseal vascular area of Lexer Nussbaum states that the cartilaginous and bony stages must be considered separately. In infants practically only true end arteries are found while at a later age all epiphyseal arteries form an extraordinarily close vascular plexus. Unlike other investigators Nussbaum found no anastomosis between the epiphysis and diaphysis as long as the epiphyseal line remained but in the periosteum numerous vessels ran across the epiphyseal line from the diaphysis to the articular portion. At a later stage the entire epiphyseal line of the lower end of the femur devoid of vessels except for the arteries mentioned as crossing it. The articular cartilage is also without vessels.

With regard to the relations of the capillaries in the bone areas examined nothing new was discovered. In the second part of the article the author discusses the relations of the vascular supply to pathological processes in the bone. Exclusion of the nutrient artery by ligation caused no perceptible changes in the bone. In the healing of fractures no uniform effect upon the callus formation resulted from tear of the nutrient artery unless the peripheral vascular plexus the source of collateral pathways extensively injured.

On the basis of his findings the author is inclined to reject the theory that loose bodies in the joints of other joint series are due to embolic occlusion of the articular trunks. On the other hand he believes that the wedge shaped tuberculous foci in the bone are to be referred to larger or smaller tuberculous emboli or a tuberculous arthritis. The larger emboli arise from foci in the pulmonary veins or tuberculous processes which have broken into the pulmonary veins. Smaller foci may arise at any point. The course and treatment of osteomyelitis are also partially dependent upon the arrangement of the blood vessel in these areas.

BONE (2)

Parker C A The Pathologically Flexed Knee  
*J Am Med A* 1931 1: 198

The pathologically flexed knee is a weak knee unless it is firmly ankylosed and if the deforming process is inflammatory it usually causes pain in

walking. The advantage of the extended knee is that it will support the body weight even if the limb is paralyzed. In arthritis in which movement is reduced the extended position gives the greatest length with the least limp. Four cases are reported.

CASE 1 The patient was a woman 61 years of age who had had an infected swollen knee for four years. There was flexion of 90 degrees with very little movement. Pain was severe on forced movement. The X ray showed no marked changes in the contour of the bones. Under anesthesia the knee was straightened and placed in a cast. The reaction was slight. The cast was left on for a month and then replaced with a removable cast to protect the joint against injury and to prevent the return of the deformity. The patient was then able to walk without crutches.

CASE 2 This was a case of osteo arthritis of both knees which had been present for eight years and caused flexion and pain. Several operations had been performed to eliminate the focus of infection. The author corrected the flexion by means of a series of casts. The patient was then able to walk long distances without aid.

CASE 3 The patient was a woman 57 years of age who was barely able to walk with crutches because of flexion of both knees. The X ray showed extensive erosion of the articular surfaces. The knees were straightened under anesthesia and placed in casts. Later removable casts were applied. After the treatment the patient walked without aid.

CASE 4 This was the case of a man 64 years of age whose left knee was flexed at right angles. Under anesthesia the knee was straightened and a cast applied. Following the use of a series of casts he was able to walk.

In the treatment of pathologically flexed knees prevention of the deformity is very important. The use of fixative measures in complete extension for practically all acute or chronic inflammatory affections of the knee joint is a well established principle.

In non tuberculous types the author generally uses force under anesthesia. When anesthesia is contraindicated he effects reduction gradually.

In some cases correction of the knee is followed by motion. If the ankylosis is bony it is due to an old tuberculosis and requires a bone operation for correction. This is best done at a distance from the joint and in most cases should consist in removal of a wedge from in front of the femur just above the epiphyseal line.

In the author's opinion it is not necessary to have the knee flexed at 10 or 20 degrees the limb will be stronger and less irritable if the knee is extended.

FRANK G. MURPHY, M.D.

Koehler A Typical Disease of the Second Metatarsophalangeal Joint *Am J Roentgenol* 1913  
x 5

About seventy five cases of Koehler's disease have been reported in which there was involvement of the articular surface of the base of the proximal

phalanx of the second toe the metatarsophalangeal joint the articular surface of the head of the metatarsal the head itself and the entire distal half of the metatarsal. The changes are as follows:

The circular shadow of the articular surface of the proximal phalanx in the roentgenogram made in the antero-posterior plane becomes irregular. The joint space then usually becomes broader than normal, the condition thus differing from the arthritis in which this space becomes narrowed. In the third stage the irregularity of the joint space becomes asymmetrical, the fibular half sometimes appearing double the tibial half. Later the articular surface of the metatarsal head develops into a regular knobs and defects. In cases of long standing there are circular shadows on the fibular aspect of the joint varying in size from that of a pinhead to that of a pea. The head of the metatarsal is shortened in its distal third and the entire distal half of the metatarsal is definitely increased in circumference resembling the proximal half and involving both the medulla and the cortex.

The subjects whose cases are reviewed ranged in age from 10 to 40 years. Two thirds of them were between 10 and 18 years and probably in all cases the disease originated during the growth period.

Complaint is usually made of pain over the affected area especially during weight bearing locomotion and eversion of the foot. The area involved is tender on pressure and the soft parts above it are swollen. In two of the author's cases the X-ray showed a bowing of the epiphysis toward the dorsum of the foot.

Koehler emphasizes that this condition has definite characteristics differentiating it from chronic arthritis. With regard to the pathology he reviews the studies of Fromme and Cahen-Brach who found necrosis fibrous marrow and tissue resembling granulation tissue thickened cortex and well preserved cartilage.

Because of the slow onset and occasional bilateral occurrence of the condition Koehler attributes it to repeated barely perceptible mechanical injury. Fromme believes the disease is an osteochondritis of the nature of late rickets and regards Perthes disease of the hip Schiatta's disease of the tibial spin and the navicular disease of Koehler as similar.

The early treatment should consist in rest in bed constitutional treatment baths and the application of poultice heat massage etc. A well fitting shoe with an insole should be worn. Operation is indicated only after conservative methods have failed and only in the cases of patients beyond the growth period.

R D H S R C R M D

A H U E N G. Koehler's Disease of the Metatarsophalangeal Joints (D Koehler's E. K. Engd. Metatarsophalangeal Lig. Inl.) M. D. M. 93 56

Axhausen has seen fourteen cases of Koehler's disease of the metatarsophalangeal joints in the

course of a year. The condition involved the second or third joint of the middle toe and its duration ranged from five weeks to four years.

This lesion occurs more frequently in the female than in the male and its highest incidence is between the tenth and thirtieth years. Usually the cause is no history of trauma. At first the roentgen ray picture is negative but in the second stage a flattening and condensation in the heads of the bones are noted. The shafts of the metatarsals then become thickened and ultimately the picture is that of severe arthritis deformans.

In Axhausen's opinion the condition is primarily a necrosis of the epiphyses due to complete interference with nutrition caused by mycotic emboli the cartilage remaining supplied. The dead epiphysis is rebuilt but soon a pressure fracture results and because it occurs in the distal end cannot heal.

Axhausen discusses the chondral and osseal types of arthritis deformans. Koehler's disease he regards as a typical example of the latter.

In advanced cases operation and treatment is indicated. In early cases Axhausen places a transverse block of wood on the sole of the shoe (the Bradford method) to decrease the load placed upon the head of the metatarsal bones. Final judgment on this conservative method of treatment is reserved for the future.

KAPFIS (Z)

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

LE R E. The Normal and Pathological Fate of Bone Transplants (U. B. D. M. I. and P. Th. L. G. H. F. G. H. E. D. K. O. C. H. T. P. L. T. E.) 41  
K. S. D. 93 64

The author holds to the belief that metaplasia of connective tissue does not play a part in the proliferation of bone transplanted into other bone muscle or subcutaneous tissue. For the growth of a transplant post-operative necessary. This gives rise to the osteogenic cells that invade the lacunar canals of the resorbing transplants bridges fissures and spaces between the ends of the bones and serve as a definite barrier against ingrowing vascular connective tissue.

Resorption of the osseous tissue in a transplant is normal phenomena that can be followed by the roentgen rays. Signs of the process are a clearing of the shadow of the transplant and a lessened erosion appearance of the border and contours. Widenings of the lacunar canals and finally when a pseudarthrosis results the disappearance of the shadow. The stages of resorption or atrophy most marked from the first to the tenth week the shadow of the graft then becomes denser and decreases and with the resumption of function takes on the contour of adjoining bone. Proliferation of a direct resorption may occur at the same time but up to the fourth month the latter usually predominates.

Abnormally rapid and extensive atrophy of the osseous tissue of a transplant follows a process

that favors the ingrowth of vascular connective tissue viz the presence of open spaces due to care less apposition of fragments the absence or death of a protective periosteal covering the presence of infection and too early motion

Only bone pins completely covered with periosteum will effect arthrolysis successfully. Pins partially covered with periosteum soon become resorbed as the result of the ingrowth of connective tissue around the joint spaces

WILLIAM P. VAN WAGEN, M.D.

### Kirschner The Correction of Bony Deformities

(D. Au gleich k oech Def m taete ) 47  
I m m l d d t s c k G l l s k f C k 1923

A deformity of considerable extent cannot be corrected by simple osteotomy. Complete subperiosteal removal of bone and its reimplantation in small pieces is an operation not without danger. Kirschner exposes the bone over a wide area and without drawing off the periosteum makes several osteotomies without causing complete solution of continuity. The bone may then be straightened readily and consolidation takes place quickly. This procedure has proved of value also in pseudarthrosis and in the treatment of nail extension may be employed for the lengthening of bones. Fat embolism has not occurred.

LEYER (Freiburg) called attention again to the fact that the chief requisite for good healing in fractures is early and exact reduction. For fractures that have united poorly for fracture of the patella and for fracture of the tibia, the operative treatment comes under consideration.

HUBNER (Berlin) reported on 145 cases of fracture of the neck of the femur in thirty-three cases union did not occur. Two requisites for successful results are: (1) exact apposition and fixation in overcorrection and (2) absence of weight bearing. Weight bearing for six months may cause poor results.

VON KLAU (Cottagen) stated that the influence of hypertonic solution on the tissues is dependent not upon their hypertonicity but upon the ions. The calcium is particularly important. These form a continuous system with the sodium on the one hand to calcium magnesium on the other and between the two and member there is a certain antagonism. Hypertonic calcium chloride solution applied to the surface of a wound causes hypertrophic granulations if calcium chloride solution is applied to the surface the granulations disappear and there is rapid formation of the bony callus.

VON FLEISBERG (Vienna) called attention to the importance of stretching the muscles in the treatment of fractures. In extension he employs Schmerz lamps and Braun's universal plant.

KLAPP (Berlin) femoral treated his method of the long fracture of the radius which differs from the old method of Schede. After exact apposition the forearm is placed in a plaster of Paris cast for three weeks the fingers being left free. Klapp believes

that functional treatment begun too early is disadvantageous.

LEYER (Freiburg) is opposed to the use of the plaster of Paris cast.

KRAUSCH (Berlin) stated that he is partial to the use of the Steinmann nail. Hackenbruch's clamps he has not found successful. He has used wire extension only in fractures of the fingers. He treats fractures of the radius without a plaster cast. In the most unfavorable cases of fracture of the neck of the femur he has removed the femoral head.

COETZE (Frankfort) recommended and demonstrated a horseshoe extension apparatus he devised which turns in all directions and gives good apposition in fracture of the femur.

ANSTADT (Darmstadt) discussed the advantages of active over passive movement and described his apparatus by which the patient is enabled to make active movements of the injured member.

WULLSTEIN (Essen) stated that the treatment of fractures must be as simple as possible. For the upper extremities he recommended a plaster of Paris cast with strong extension.

COCHT (Berlin) stated that he believes every method may lead to the desired end in this connection he called attention to the fact that although Schiele plants are no longer useful Schiele obtained good results with them.

WOHLGEMUTH (Berlin) recommended a femoral splint used by him with success during the war.

BLOCK (Berlin) demonstrated an apparatus he devised for wire extension which is very easily adjusted applicable to any case and of value for double extension.

BIFR (Berlin) stated that up to a short time ago it was believed that a joint or pseudarthrosis could be produced by movement. That is not the case. A joint occurs where a joint belongs. Only in disease conditions will a joint be formed elsewhere. A pseudarthrosis always reappears at the same point. It may occur even when a well fitting plaster of Paris cast is used. In addition to mechanical factors a certain irritation is necessary (hormone theory).

LEYER (Freiburg) called attention to the difficulty of mobilizing ankylosed joints.

MUELLER (Rostock) stated that the advance in the bloodless treatment of bone fractures is due first to aid given by the roentgen picture and second to early functional treatment.

KAPPEL (Hagen) stated that when a plaster cast is employed on the forearm the proximal joints of the fingers should be left free so that they may be freely moved. In a case of non union having noticed that the pulse in the leg was poor he performed a periaortic sympathectomy. This resulted in the return of the pulse and good bone consolidation.

VON ZOEGLER MANTZKE (Dorpat) called attention to the action of cold in causing a thickening of the bone and how by employment of the latter a pseudarthrosis may be healed.



LEVER (Freiburg) discussed the influence of nutrition on fractures as indicated especially by hunger osteopathy.

BORNER emphasized the importance of not adhering rigidly to any particular system. He believes that as good results are obtained with plaster of Paris casts with plants and Schmerz clamps.

KLAFF (Berlin) discussed the advantage of wire extension over Steinmann's nail. The former can be continued for three or four months but the Steinmann nail must be removed at the end of three or four weeks.

STETTSER (Z)

Debrunner H. The Result of the Implantation of Tissue in Artificial Bone Defects. (L.berch. W. k. g. n. G. Impl. tat. n. in. kue. t. h. K. oche. l. eck. ) S. A. med. W. ch. ch. 1923. Jul. 271.

This is a preliminary report of the results of experiments in the production of artificial pseudarthroses in rabbits. It was found that callus formation was not prevented by the transplantation of free muscle tissue because the callus developed better than the tissue that had been separated from its source of nutrition. True pseudarthroses resulted however when a muscle flap not separated from its nerve and blood supply was interposed with the surrounding tissues. It is possible to solidify the incision which prevents bony consolidation.

The results of the transplantation of free synovial membrane were surprising. In six attempts true pseudarthrosis was produced for three and all but one of these once consolidated. Consolidation occurred in only one instance. The roentgen-ray plates and histological examination showed that the callus was formed very slowly and gradually broke down. The author explains these findings by the assumption that the synovial membrane being a joint building tissue prevents the calcification of the cartilaginous callus.

DIXON (Z)

KOLIN, L.: The Operative Treatment of Bone Fractures. (L.berch. W. k. g. n. G. Impl. tat. n. in. kue. t. h. K. oche. l. eck. ) S. A. med. W. ch. ch. 1923. Jul. 271.

In general there are three types of treatment for bone fracture: the conservative, the conservative operative and the radical operative. The first two are suitable for fresh fractures not connected with large bone cavities. In many cases of old fractures the radical operative method is the only one which will give a permanent cure. In cases in which the fracture have been present for months or years, the osteomyelitic process is well advanced and bone cavities of considerable size have been formed. As a rule the bone cavity is the only factor preventing healing of the fracture. The granulation tissue lining an old bone cavity no longer has the ability to regenerate its proliferating power is diminished. At operation the tissue must be thoroughly removed from all pockets and channels. In the central cavity as well as possible. The preparation of the cavity in the bone may then be filled with the

surrounding soft parts in the form of a pedicle flap (von Hacker's living tamponade). This radical operative treatment is the method of choice in all cases of large bone cavities.

Fifty old cases which had been operated upon more than once before were treated by the author by the method described. In forty six (92 per cent) a definite cure of the fracture was obtained. In 8 per cent a recurrence developed. Another operation was necessary in only 2 per cent as most of the recurrences healed spontaneously. In ten cases (20 per cent) the fistulous tract led to a large bone cavity but these did not contain any sequestrum or foreign body. In the forty-six cases in which a good result was obtained twenty-one months had elapsed before the curative procedure was undertaken. The average length of time required to effect a cure was thirty-nine days.

K. L. V. (Z)

SIMON, S.: The Treatment of Bone and Joint Tuberculosis in Children. (L.berch. W. k. g. n. G. Impl. tat. n. in. kue. t. h. K. oche. l. eck. ) S. A. med. W. ch. ch. 1923. Jul. 271.

Bearing in mind the remarkable results which Koller and Bernal have obtained by conservative treatment of what was formerly considered inoperable tuberculosis of the joints, the author undertook to treat by conservative method all of the cases of tuberculous affection of the bones, joints, skin and glands which came under his care during a period of three years.

The results reflected the statements of the originator of this type of treatment, demonstrating that the ideal conditions for healing and restoration are obtained when the patient is placed as completely as possible in a rest and subjected to the chemico-physiotherapeutic influences of sunlight and open air. The 35 cases were the majority of which were those of persons of the posterior class representing tuberculosis of the bones and joints of all degrees of severity and location. Following the employment of no other radically conservative measure the author is able to report 126 complete clinical results which in view of the usually unfavorable circumstances in these cases is very worthy of consideration. In many instances the treatment was prematurely broken off on account of the very long time required for its completion. The high rate of healing in an antituberculous and the importance of the patient and his relatives. As the social background of these fractures is largely the result of the author's announcement to abandon surgical treatment entirely. He believes that surgery may be indicated for instance in the case of an adult with local tuberculosis while the rest return to the occupation as quickly as possible and so not especially anxious about the functional cosmetic result. It would be indicated in the recurrence of tuberculosis with a mixed infection and a fracture as in such a case surgical removal of the disease focus might prevent a threatened septicemia or a general infection of internal organs.

In conclusion Simon states that at the present time conservative treatment in tuberculous affections of the bones joints skin and glands being constantly extended because although it is expensive its brilliant results cannot be equaled by surgical procedures which do not always cure and practically always mutilate

HELLER (7)

Fisher A G T Research into the Physiological Principles Underlying the Treatment of Injuries and Diseases of the Articulations  
La cet 1923 cc 541

The science of manipulative surgery is as yet in its infancy. Many stiff and deformed joints might have been prevented by a knowledge of physiological principles. Restoration of movement to crippled joints is often possible.

When there is doubt as to when to immobilize and when to encourage movement the tendency is too often toward immobilization. On the other hand the routine use of movement is also erroneous.

Normal articular cartilage has a smooth surface lubricated by synovial fluid which lessens friction to the minimum. It has great strength and because of its elasticity it yields to blows which might otherwise damage the subjacent bone. Articular cartilage has greater vitality than bone. Its immunity to tumor formation is due in large part to its lack of blood vessels. However the author has found experimentally that it is possible to produce small tumors of the lateral part of the articular cartilage by means of radium.

There is a difference in the structure of the central and the lateral articular areas. The nutrition comes from the circulus articularis vasculosus lying near the articular edge and giving delicate offshoots to the lateral part of the cartilage. In Toyne's opinion the nutrition is derived from capillary loops lying in the cancellous spaces beneath the subarticular layer of bone. Strangeways regarded the synovial fluid as a source of nutrition to the cartilage.

Active repair and new formation of articular cartilage is greater in the lateral portion than in the central part. Destruction of the central part is followed by a compensatory proliferation of the lateral part.

There is evidence that osteo arthritis may be the result of auto intoxication.

The synovial membrane differs markedly in its structure at different points in the same articulation. The membrane surrounding the tibia fatty processes projecting into joints such as the infrapatellar pad of fat is rich in cells secreting mucin which Havers called synovial glands. The synovial membrane is richly supplied with nerves.

There is greater absorption of ionic solutions diffusible dyes and colloidal dyes during motion than when the joint is at rest.

In experiments the author has found that loose bodies occurring in joints usually become attached to the synovial membrane and that the latter surrounds them with a connective tissue sheath.

On the basis of these physiological principles it is concluded that most cases of acute joint inflammation should be placed at rest. Extension prevents deformity. Functional positions of election must be borne in mind. Early movement made cautiously and gently as the acute symptoms subside is indicated in all cases except those of tuberculosis.

In chronic synovitis carefully regulated movement favors the absorption of the intra articular fluids. Early movement is indicated in injuries or fractures involving the articular cartilages and following arthroplasty.

DANIEL H. LEVINTHAL, M.D.

Hiley Groves E W Arthroplasty *Bull J S G*  
1923 1 234

In determining the advisability of performing an arthroplasty the surgeon must consider the nature of the causative disease, the nature of the disability and the patient's circumstances.

The condition which promises the best results is complete bony ankylosis with bones and muscles free from infection and pain. Cases of ankylosis resulting from trauma pyæmia or gonorrhæa in which infection is at an end are most favorable for arthroplasty. Ankylosis resulting from tuberculosis osteo arthritis and rheumatoid arthritis are less favorable. If the ankylosis is bony and painless and if the limb is in good position it is usually better to leave it alone.

For a successful result following arthroplasty the intelligent cooperation of the patient is essential. It is useless to operate upon professional invalids and workmen who do not want to return to work.

In the formation of a new joint there are six essential points: (1) to make a sufficient gap between the bone ends; (2) to hapt the articular ends; (3) to cover the articular ends; (4) to provide synovial fluid; (5) to provide ligaments and prevent undue mobility; and (6) to restore function.

The most successfully treated of the large joints is the elbow. The flap method is superior to excision of the joint. A free flap of fascia lata is used. The author describes the technique of operation in detail.

In the hip there are three conditions each calling for a special type of mobilizing operation—simple ankylosis, massive ankylosis, and osteo arthritis.

Simple ankylosis requires osteotomy of the neck, gouging of the shallow cup in the old head and covering of the end of the neck with a flap of fascia lata.

In massive ankylosis the femur should be divided below the trochanter forming bones in a saddle shape and a flap of fascia lata turned in.

Osteo arthritis requires simple excision of the head and covering of the stump of the neck.

In all cases the after treatment should consist in slinging the leg to an overhead beam with the hip in flexion and abduction and the maintenance of a traction of 20 lbs for a few weeks until the patient is able to get up.

In the case of a knee which is firmly ankylosed in good position a mob living operation is not justified. Two conditions indicating the operation are ankylosis of both knees and ankylosis in a faulty weight bearing position. The author uses Lottis technique.

The collected results of twenty-one British surgeons are given. The chances of a good functional result in the elbow were about even with the chances of failure. In the hip and knee the chances of improvement were only one to four or five. While arthroplasty is capable of producing almost perfectly functioning joints the attainment of such a result is exceptional. H. R. M. C. SCHWARTZ, MD.

**Blealski Experience with the Physiological Transplantation of Tendons and Its Results** (Izreb. se. i. f. l. hru. gen. m. t. d. phys. lo. gisch. n. Sch. n. pflan. zu. g.) Zis. h. f. orthop. Ch. 19. 3. xli. 3.

The advantage of physiological transplantation lies in the fact that the normal mechanism for the gliding of the muscles and tendons is maintained and the activity of the displaced muscle is not disturbed because its attachment retains the normal relation to the applied force.

The author shows by x-ray pictures of photomicrographs that transplanted muscles and tendons are surrounded by normal gliding tissue and that even their own myotendon is reformed.

In cases of deformity tendon transplantation should be attempted only after the deformity has been entirely eliminated up to the point of overcorrection. B. C. T. Z.

**Müller O. Clinical Observations on the Suture of Tendon** (Klin. ch. B. b. hru. g. n. s. h. n. n. h. n. B. u. k. Ch. 19. 3. c. x. 1. 754).

After a brief review of the literature the author gives the findings made in the clinical examination of 102 cases of tendon suture done at the Heidelberg clinic. In 66 per cent of these cases the union of the tendon stumps was firm and the function of the injured limb was practically normal.

The prognosis depends not upon whether the lesion is on the flexor or extensor surface but upon whether or not it lies in the core of the tendon sheath. In cases of the latter type cure results in only 20 per cent of the cases whereas in those of the former type it is obtained in 80 per cent. Solon states that when the tendon sheath must be removed it is necessary to guard against adhesions between the skin and the tendon. The palmar fascia disturbs the gliding function and in interfering with the gliding function adhesions to the loose skin of the dorsum of the hand do not have much effect on the end-result. Suture should be left to the general practitioner only if the ends of the stumps are visible in the wound and all other cases should be referred to the hospital.

The prevention or elimination of infection is of importance. In the cases reviewed primary suture

according to the method of Walms with immobilization of the injured extremity for eight days and subsequent energetic after treatment gave the best results. In the treatment of contaminated tendon wounds balsam of Iru proved of value. In some of the cases the tendons became caught in the scarred and contracted tendon sheaths and the hand had the appearance of a bird's claw. B. C. T. Z.

**Koenig E. Experiences in Free Bone Transplantation in Tuberculous Spondylitis** (E. f. hru. g. n. m. t. d. l. r. e. n. Knochen. trans. p. l. t. n. b. i. S. p. o. d. y. l. i. t. i. s. u. l. o. s. a.) Z. h. f. orthop. Ch. 19. 3. x. 386.

The original technique for the Albee operation the median splitting of the spinous process was preferred to all modifications. In thirty-nine of forty-one cases the transplants healed in without reaction. In one case its removal was necessary on account of wound infection and in two shortened at both ends. It was necessary to protect the overlying skin against pressure necrosis. There were five deaths. One was due to meningitis from wound infection during the channeling in the sacral crest. The dorsal sac was opened. The four others were late deaths. One was due to tuberculosis; one followed laminectomy and two occurred after the patient had been discharged from the hospital. Thirteen operations were carried out according to Palva's method. In the majority of these the results were unsatisfactory.

In two of the twenty-eight cases in which Albee's procedure was used the operation failed. In one the failure was undoubtedly and in the other apparently a too short transplant. In a far advanced case of tuberculous of the lumbar spinal column the result was only moderately successful; the transplant had little corrective effect on the kyphosis. In ten cases there were burrowing abscesses; nine of these had penetrated spontaneously and caused the formation of a fistula. Closed palpable abscesses were opened by puncture before operation and injected with iodolform glycerin. In a patient 18 years of age the abscess entirely healed after wide opening, cleansing with carbolic acid and suture. In the other cases of large abscesses a successful result was rare. In one case in which shortening of the transplant was necessary that of a 6-year-old patient an abscess developed after the operation.

Laryngeal pharyngitis should be overcome by intratracheal emesis. This retrogression was seen only at the very beginning of pre-surgical symptoms. In advanced cases the condition did not abate. Experience with laminectomy during the same period (improvement in 40 per cent) showed that when conservative treatment has failed operation to relieve pressure is urgently indicated to save life. In the only case in which the cervical vertebral column was ankylosed a very good result was obtained.

The operation should not be performed before the second year of life. Contra-indications to be

transplantation are signs of paralysis burrowing abscesses with fistulae and advanced visceral disease (lungs kidneys) When four or five vertebrae are involved the prospect of cure is slight

The best results are obtained by early operation In 70 per cent of the cases operated upon by the author the condition was improved In the early cases the spine became capable of weight bearing and the symptoms disappeared (LAMPRE 17)

**Fuffer Osteomyelitis of the Lower End of the Femur Treated and Cured by Anti Staphylococcus Medication and Puncture with Aspiration of a Deep Abscess** (Osteomyélite de l'extrémité inférieure du fémur traitée et guérie par l'injection d'un anti-staphylocoque et évacuation avec ponction profonde) *Bull. Inf. Soc. d'h. d. La.* 923 x 1 667

A 9 year old child with all symptoms of acute osteomyelitis of the femur was treated by the injection of 1 ccm of staphylococcus vaccine corresponding to four billion staphylococcus aureus and one and one half billion staphylococcus albus The following day an injection of 1 ccm of vaccine corresponding to 500 mill on staphylococcus aureus and 200 mill on staphylococcus albus was given The third day the temperature fell and the swelling on the internal aspect of the thigh became fluctuant Five days after the onset 100 gm of pus were withdrawn by puncture and 1 ccm of vaccine was injected Subsequently two more injections of vaccine were given in the hospital and the child was sent home During the following month two more injections were given The pus showed pure staphylococcus aureus

Ultimately complete cure with good function and negative X ray findings as eff test

In the discussion both Broca and Grigier are inclined to doubt that osteomyelitis has ever been present as the roentgenogram showed nothing to indicate it As the point was established that changes appear in the trabeculae only after the disease has been present a month or so Fuffer stated that he would have the negative ray again later

K. LUDWIG SPEDEN M.D.

**Seiffert Transplantation of Knee Tendons** (Ueber planung und knieschneidung) *Bull. Inf. Ch.* 933 x 4

The author reports twenty nine transplantations of knee tendon twenty six of which are long because of paralysis paralysis If the gait is sufficiently steady in spite of such paralysis operation is not considered Only voluntary muscle may be fully transplanted The first is well adapted to the operation but it is suitable for a transplant at the same time as the nerve and to suture the stump of the tendon to the patella The gracilis muscle is selected for the musculocutaneous because it is more superficial and is very richly supplied The sartorius is used only when there is nothing left The semitendinosus is not available because

it is necessary to secure the joint against over extension Silk sutures are used The results have been uniformly good

Schmidt (Z)

## FRACTURES AND DISLOCATIONS

**Rugh J T The Differentiation of Sprain Fractures and Congenital Anomalies** *Thorp G* 1933 x 11 609

The author has been impressed with the possibility for error in the diagnosis of so called sprain fractures especially those occurring in the hands or feet The layman will invariably attribute the condition to the injury whether this was mild or severe and there is no doubt that the relationship between trauma and the results is often misinterpreted Frequently an anatomical anomaly causes no disturbance until some slight strain occurs and then the pain and disability resulting is disproportionate to the severity of the trauma This is often true of condition of the lower back

The recognition of a sprain fracture of the ankle following a misstep is generally easy and the X ray examination will show a small layer of bone torn off at the point of ligamentous attachment In other cases with similar symptoms the X ray discloses a supernumerary bone or a discision of the bony parts which simulates a fracture but is in reality a congenital anomaly

Rugh discusses a case diagnosed as a sprain fracture in which a tibiale externum was found at the inner edge of the scaphoid and an os trigonum at the posterior edge of the astragalus In another case similarly diagnosed the symptoms were due to spina bifida occulta

The most common anomalies in the foot are the tibiale externum the os trigonum and the os versianum at the base of the fifth metatarsal Less common are a secondary os calcis near the head of the astragalus an intercuneiform an intermetatarsal sum and a sesamoid in the tendon of the peroneus longus A variation in the sesamoid in the tendon of the plantar flexor of the great toe may suggest fracture Two sesamoids are common but in some cases three or four may be present

Knowledge of these anatomical variations is of importance in the interpretation of skiagrams particularly because of their medicolegal aspects

R. C. L. BROWN M.D.

**Lambotte A What Is the Best Time for Osteosynthesis in Recent Fractures?** (Quel est le meilleur moment pour pratiquer l'ostéosynthese dans les fractures récentes) *Bull. Inf. Ch.* 923 x 1 57

In Lambotte's opinion the length of time operation should be delayed after fracture is as follows  
1 Fractures of the humerus radius and ulna oblique fractures of the leg diaphyseal fractures in children not less than eight days

2 Fractures of the shaft of the femur in adults twelve to fifteen days While muscular contraction

and infiltration of the soft parts are theoretical objections to such a long wait they are of no practical importance especially when methods of traction can be used in the interim

3 Epiphyseal fractures delay in union is rare therefore long delay of operation is unnecessary

4 Fractures of the condyle of the humerus in children from four to six days

5 Fractures of the tibiotarsal joint from ten to fifteen days

6 Fractures of the femur fifteen days

7 Fractures of the patella from eight to ten days  
KELLOGG SPEER M.D.

Albanese A. An Experimental Contribution to the Study of Wolff's Law in the Healing of Fractures. (C. nt ibut perim natale llo tu t d lla lgg d W lll el proce so de guarigion d lile f t t ) J l l l l om 1923 x sc ch 337

In fractures produced in animals the author studied osteogenesis by means of injected alizarine which has a predilection for neo-osseous formations.

The findings fully demonstrated the principle of Wolff's law in regard to the transformation of bone and the physiopathology of fractures. They confirmed also to the principle of the trophic action of functional stimuli on the process of osseous neoformation and demonstrated the diversity between anatomical and functional consolidation of fractures.

W. A. BRENNAN

Imbert L. The Treatment of Pseudarthrosis by Injections of Fracture Serum. (T t m nt des p l thr ses pa le injecti n d serum d i tu ) P mld l r 93 xi 681

A fracture is not aided in healing and a pseudarthrosis is not cured by the ingestion of calcium preparations. After fracture the blood contains the same quantity of calcium as before since the absorption of this element is not increased. On the other hand the site of fracture suddenly acquires the power to utilize calcium in the formation of callus. In the author's opinion this utilization acquired power may be due to the presence in the blood of the secretion of some gland or tissue which is stimulated by a subcutaneous elaborated tissue of fracture and arranged in the circulation. If this assumption is correct it appears legitimate to assume that consolidation would not occur if any of these substances was lacking and that it would occur if they were added to the blood by the injection of blood serum from a person with a healing fracture.

The author believes that when pseudarthrosis or delayed union is not due to an anatomical condition such as a great loss of bone substance faulty apposition or the interposition of muscle the subcutaneous injection of blood serum from a patient with a fracture about thirty days old and in the process of normal union is indicated. He injects 5 c.c.m. of blood serum taken immediately after coagulation of the drawn blood. The donor

must be free from infectious diseases and must have a negative Bordet Wassermann test. Various sera should be tried until one is found that is active.

In six cases of pseudarthrosis treated in this manner there were no unfavorable complications. In four solid union resulted quickly but in two the consolidation was not permanent.

WALTER C. BLARRY M.D.

Brisset. Decapitation of the Humerus with Intra Coracoid Dislocation of the Diaphysis. (D c p tati d l h m r u s e l u a t i t c a l d e n d l a d p h s e ) B l l t m m Soc d h d p 1923 xi 9

The case reported was that of a man who fell upon his shoulder from a bicycle. The diaphyseal fragment was pushed upward toward the axilla. An attempt at extension with a Delbet apparatus was unsuccessful. Bloodless reduction of the diaphyseal fragment was effected under anesthesia by tracheotomy with the humeral head could not be maintained and retention was possible only with the use of a long Limbott screw. Function was restored by the end of a month.

In discussing this case Hallopeau remarked that it was one of horizontal fracture of the surgical neck at its upper end. He had had ten such cases of transverse fracture with diaphyseal displacement and believes that the operative method of reduction is the only method indicated. The use of screws for retention is not always necessary. In several of his cases the reduction of the fragments was maintained by the muscles.

W. A. BRENNAN

Goddard L. A. O. A Report of Unusual Gas Infection with Compound Fracture and Bridging of New Bone with a Bone Transplant. J B o & J S t 93 84

This article reports the case of a boy 19 years of age whose left arm and right hand were mangled in an accident March 21 1917. A pair of the lacerated area was effected but ten hours later the patient was referred to the author in poor condition with a temperature of 103.5 degrees F and a weak pulse.

Under anesthesia all sutures were removed multiple incisions were made and Dresser's treatment was begun. The next day the condition was much improved. An reanastomosis of the fore arm was exposed for a distance of 6 inches down to the ulna. Under compression the mass of the general condition improved and the wound filled with granulation. The next day at this time the loss of 3 inches of the radius was removed. The amputation was begun long before the wound healed.

On May 6 a small piece of bar bone was removed from the region of the ulna. It had been previously entered by ligamentous exercise and massage led to steady improvement. On July 7 the patient was discharged to return to work.

A centigram made on August 19 showed a bridging over of the 3 inches of the radius with so

bone. The patient was able to rotate the forearm a function which had been impossible before. By March 1922 an excellent result had been obtained. Slight abduction of the hand was the only evidence of deformity.

A number of roentgenograms are reproduced to show the extraordinary activity of bone growth.

FRANK C. MURPHY, M.D.

**Boehler, L.** The Functional Mobilization Treatment of the Typical Fracture of the Radius (D f kt onelle B gung beha dlung d r typ- i che R d usl rue h) *M ch n m d B h hr* 1923 1 387

According to the most recent estimates typical fractures of the radius constitute about 25 per cent of all fractures. The results of the former immobilization treatment which in favorable cases required about forty to sixty days are unsatisfactory. By the term functional mobilization treatment Boehler means that the reduced fragments are kept completely and continuously at rest but movement in many or all of the joints is maintained. The still common practice of placing a fracture of the radius at rest in maximum volar flexion and ulnar abduction with a Schedt signet is to be condemned. This immobilizes not only the fracture fragments but also all nearby joints in a position which in the cases of persons over 40 years of age will cause stiffness in one week, a stiffness which cannot be relieved. Moreover since in volar flexion the extensors become over-stretched they tend to shorten and as a result a new displacement of the reduced fragments often occurs. To prevent this the hand must be fixed in a position which relaxes the flexors and extends equally.

Reduction of the fragments can be accomplished satisfactorily when all pain and the muscle contraction caused by it are prevented by general or local anesthesia. Usually it may be effected by traction even if traction and counter traction in a longitudinal direction. If this fails the author places the forearm just above the fracture site on a block of wool covered by a cushion and while maintaining longitudinal traction flexes the proximal fragment first volarward and then ulnarward simultaneously pronating the hand. He then applies an undisturbed dorsal plaster-of-paris splint at 25 cm. long and encloses with the wrist joint in extension a slight dorsal flexion in the proximal finger joints left free. The longitudinal traction and the support of the fragments are continued until the plaster of Paris has hardened.

The patient begins a free movement of the fingers and elbow joint on the first day. After two or three days the hand may be used with caution. The splint is left on continuously for three weeks. The capsular and ligamentous apparatus of the wrist will not shrink and the tendon of the exercised fingers continues to glide over it. The re-injury limitation function usually disappears within a week after the removal of the splint. *But see (Z)*

**Massart, R. and Cabon, P.** Traumatic Lesions of the Wrist in Children. Late Results (Les lésions traumatiques du poignet chez l'enfant ré-sultats éloignés) *Ly n ch* 1923 xv 67

The authors studied the late result in the following eighty-eight cases: sprains of the wrist and epiphyseal separations of the radius without displacement; nineteen epiphyseal separations with displacement; twenty-five fractures of the radius alone; eighteen fractures of both bones in the lower fourth (green stick type); ten fractures of both bones with overriding; sixteen.

In nineteen cases of sprain with slight epiphyseal separations eleven showed a perfect anatomical and functional result and three a shortening of the radius of from 0.5 to 1.05 cm. but normal function. In three others there were satisfactory functional results but complaint was made of spontaneous pain and in two of these there was slight limitation of supination. The author ascribes the pain to a slight tearing away of the styloid process. Two cases showed serious disturbance of osteogenesis: arrest of growth and radial deviation of the hand.

If the radial diaphysis is shortened it is also broadened. Poland has observed very appreciable differences in length after unimportant clinical lesions. Anomalies in diaphyseal thickening and the arrest or slackening of growth are not in accordance with the importance of the separation and are not dependent on poor reduction. Ollet was unable to obtain arrest of growth experimentally by producing epiphyseal separation but concluded that the traumatism may localize an infection and that the latter may be a factor. However in sprains of the wrist and epiphyseal separations without displacement the results as to growth and function are usually excellent.

Of the twenty-five cases of epiphyseal separation with displacement nine showed perfect anatomical and functional results. In sixteen the functional results were excellent and the deformities which were present at the beginning had practically disappeared. The radial epiphysis in its backward displacement separates the periosteum usually over one third the length of the posterior surface of the bone and frequently tears off a small cuneiform fragment. Callus fills in between the diaphysis and the periosteum resorption takes place on the opposite side of the bone and in time the mass is molded remarkably like the original bone in form and structure so that subsequent determination of the exact lines of fracture is almost impossible. The authors have not observed arrest of bone growth after epiphyseal separation with great displacement. In some cases unexpected modifications of structure of the diaphysis near the conjugal cartilage without change in the epiphysis have been noted.

Simple fracture of the radius heals without leaving any trace even in the roentgenogram.

Green stick fractures require reduction of the angulation even though it appears negligible. Because frequently such fractures are painless



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IRANA G MURPHY M.D.

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19 3 Lx 387

According to the most recent estimates typical fractures of the radius constitute about 25 per cent of all fractures The results of the former immobilization treatment which in favorable cases required about 20 days are unsatisfactory By the term functional mobilization treatment Boehler means that the reduced fragments are kept completely and continuously at rest but movement in many or all of the joints is maintained The still common practice of placing a fracture of the radius at rest in maximum volar flexion and ulnar abduction with a Schede splint is to be condemned This immobilizes not only the fracture fragments but also all nearby joints in a position which in the cases of persons over 40 years of age will cause stiffness in one week a stiffness which cannot be relieved Moreover since in volar flexion the extensors become over stretched they tend to shorten and as a result a new displacement of the reduced fragments often occurs To prevent this the hand must be fixed in a position which relaxes the flexors and extensors equally

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The patient begins active movement of the fingers and elbow joint on the first day After two or three days the hand may be used with caution The splint is left on continuously for three weeks The capsular and ligamentous apparatus of the wrist will not shrink as the tendons of the extended fingers continuously glide over it The remaining limitation of motion usually disappears within a week after the removal of the splint

BRUNNER (Z)

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39 per cent of the cases the treatment was successful and in 22 per cent it failed. Anterior circular fractures and marginal fractures made up 80 per cent of the total number acetabular fractures 50 per cent and posterior circular fractures and Malgaigne's fractures 25 to 30 per cent. Fractures of the pelvis occurring at an advanced age have a very poor prognosis. J E IV (Z)

**Goddard L. A. O. The Treatment of a Case of Intracapsular Fracture of the Hip by the Whitman Method. J B & J N S 8 19 3 808**

The author reports the case of a patient 56 years of age who in a fall sustained an intracapsular fracture of the left hip with overriding of 1 in.

Under full anesthesia the leg was forcibly adducted and extended until it was the same length as the normal leg. Manipulation and abduction were made to bring the broken end into approximation and a plaster cast was applied. The cast included the entire left hip and limb and the right leg to the knee. X-ray examination at the end of seven weeks showed excellent position. At the end of nine weeks the cast on the right leg was removed and the patient was allowed to get up. At the end of eleven weeks the cast was entirely removed and the X-ray again showed excellent position. The plaster cast which as a by-product was worn during the day for protection but removed at night this being done for two months. When discharged the patient was able to walk without crutches or support.

In the author's opinion the Whitman method of treating intracapsular fractures of the hip is ideal if the case is seen early and cooperation is obtained. Extreme abduction is essential. Protection of the hip should be continued for a considerable time after union has occurred and may be readily obtained by means of a livable plaster cast which can be removed at night.

The article is illustrated by a number of roentgenograms showing the progress of the case. Campbell W. C. F. A. C. SURGERY M.D.

**Campbell W. C. Fractures of the Neck of the Femur. J I M I 9 3 1 1 3**

In a previous article the author reported twenty-nine cases of intracapsular fracture of the femur in twenty-four of which an excellent result was obtained. Recently he has made a clinical and X-ray study of as many of them as possible one or more years after the occurrence of the fracture to determine the nature of the union.

His discussion of factors of the hip include: Intertrochanteric and subtrochanteric fractures. The union is more rapid than fracture elsewhere.

Impacted fractures. These may unite under treatment in the first bed or any simple method of fixation. Usually they are intracapsular. The diagnosis is often impossible without an X-ray examination. Weight bearing may result in displacement of the fragments and permanent disability.

3 Capital fractures of the head proper. These are rare but may cause serious impairment of joint function and require a radical operation.

4 Intracapsular fractures. In these non union frequently results.

Of 227 cases of fracture in the region of the femoral neck sixty-seven were cases of ununited intracapsular fractures of several months or years duration. The remaining 160 were cases of fresh fractures including seventy-five which were complete intracapsular nineteen impacted fifty-nine trochanteric two impacted trochanteric and five capital.

In all cases of intracapsular fractures the Whitman abduction method was employed as a routine and a plaster cast applied.

In the aged bony union is very slow. The X-ray may show the fragments in perfect apposition at the end of six months and there may be every clinical evidence of bony union but later as weight is borne bending of the neck, coxa vara and complete separation of the fragments may result.

In twenty-one cases of intracapsular fracture examined from one to five years after the injury the results were as follows: non union one fibrous union two doubtful union two solid bony union sixteen.

Of twenty cases of ununited fracture of the hip operated upon by the author by the method he described in 1910 fourteen were cured two were not benefited one was improved and in three it is too early for conclusions as to the outcome. Union can not be affected after extreme atrophy has supervened but usually results when the fracture is less than a year old.

A graft is usually absorbed in two years.

F. A. C. SURGERY M.D.

**Huebner A. The End Results of the Treatment of Fractures of the Neck of the Femur. Also a Contribution on Non-Operative Treatment. (F. I. G. B. C. D. Beha. d. g. o. S. he. kelhal. brue. h. n. gle. h. er. Betr. g. u. Fr. g. der. u. bl. tig. n. Beha. d. ng.) Kf. W. f. d. 19 3 165**

Of 135 cases of uncomplicated fractures of the femoral neck which came to the clinic of the Charité Hospital in the period from 1912 to 1921 after treatment by various methods in other institutions 48 per cent showed non union. The examination was made from three months to thirty-two years after the injury. In discussing the functional results the author calls attention to the fact that fibrous union may give good function and that limping is sometimes due to impairment of the ability to bear weight rather than to shortening. In the case reviewed it was found that the chief cause for non union was too early weight bearing. In most instances extension or a plaster cast had been used.

The factor of chief importance in the treatment are exact coaptation of the fragments and the prevention of weight bearing for a considerable length of time. A cure is possible even in the cases of persons of advanced age. For fixation the old exten-

as in an plaster casts are the best. The prognosis is favorable if the x-ray picture shows good coaptation. When coaptation fails, operation is to be limited to subcapital fractures. Fixation is best achieved with a well made plaster cast. H. C. R. S. 303 (2)

**Alglace** Comminuted fracture of the lower end of the femur. Osteosynthetic by the Transplant Bone. Good Result. (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

An an aged 23 year old patient fell from a height of 10 feet. For two hours after the accident he was unconscious. The x-ray showed a comminuted fracture of the lower end of the femur at the epiphyseal. This resulted in the articular surface so that the fragments were separated by the distal and external condyles and the trochlea. The shaft of the femur was displaced laterally and tilted up the shaft. The trochlea was tilted by the ligament drained from the joint.

Eight days after the accident, when he was nearly as the patient's general condition was not an open fracture was done by the transpatellar route. The patella was secured in its middle and by three thirds with a C. G. saw and the blood and

intra-articular clots were removed. The trochlea was detached and wrapped in a sterile compress. The condyles were fixed together by means of a small screw and a wire. There were no complications. The trochlea was brought down to the level of the acetabulum from each condyle toward the trochlea. The reconstruction of the epiphyseal surface was facilitated by the use of the epiphyseal plate. The screw driven into the internal femoral condyle and the tubercles toward the ligaments and the patella. Laterally, the trochlea and structures were reconstructed by patellar union of the shaft. The knee was then placed in a cast.

The post-operative recovery was unremarkable. On the fourth day the gutter was removed and active motion of the knee was begun. The patient walked on the fourth day.

Three months after the operation he was able to walk on the active knee without the aid of a cane and without fatigue. The articular surface of the femur and the patella are in good position. The x-ray picture shows a good result. The patient is well and is able to walk on the active knee without the aid of a cane.

Because of the excellent results, the author reports the case of the very severe injury to the knee joint.

WALTER C. BECKER, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Ranzl E. and Albrecht O. Arterial Air Embolism Following Operations and Injuries of the Lung (Leb. a. ter. ell. Luftembol. nach pe. ati. en. En. griff. n. und. Verl. tungen. d. r. Lu. ge.) Mitt. d. G. g. b. d. M. d. u. Ch. r. 923 xx 1 709

In the authors opinion the conditions formerly thought to be pleural reflexes are nothing other than gas emboli which enter the general circulation by way of an opened pulmonary vein.

Following an exhaustive review of the literature on the subject four cases observed at the Eiselsberg clinic are reported. The first two were fatal. Although no embolus was demonstrable at autopsy the authors believe that embolism was present as it was indicated by a typical clinical picture. In the two other cases complete recovery resulted. Of special interest was the last case which was brought into the hospital for the treatment of a puncture wound. After closure of the external chest wound by suture ten on pneumothorax and air embolism developed as the result of an attack of coughing and there then appeared a series of focal symptoms which were attributed to sudden severe injury of the cortical function.

For such cases the authors recommend wide exposure and suture of the lung under differential pressure by Sauerbruch's method. RIEDER (Z).

## BLOOD AND TRANSFUSION

Moons E. Observations in a Case of Autotransfusion (Beob. htung. n. bei. n. m. F. ll. vo. Auto. t. ansfus. n.) Vlaamsch. g. k. t. j. d. k. 1931 89

The question whether or not transfusion of blood should be done after an ectopic pregnancy is still undecided. It is believed by many particularly Belgian surgeons that measures to combat the anemia following an operation are unnecessary as a case is rarely lost from exsanguination. The author favors the autotransfusion of the blood found in the abdominal cavity. He frees this of coagula by squeezing it through compresses. In one case 40 per cent sodium citrate was added to about 550 ccm of the blood which was filtered twice. The patient died twenty one hours later. The danger of autotransfusion is greater the sooner the transfusion is given after the first hemorrhage. The author therefore advocates injecting the blood mixed with physiological salt solution or glucose and without sodium citrate. If there is a choice between the blood in the abdominal cavity and that of a donor the blood of a donor is to be preferred. The addition of sodium citrate is not advisable. KOEN (Z).

Descarpentries. Injections of Autogenous Hæmolyzed Blood in Surgery and E. ternal Disease (Injections d'aut. s. g. hém. lysé en chirurgie et e. p. tholog. ternal.) J. cl. f. a. co-belges d. cl. r. 923 xx 1 63

The author gives injections of hæmolyzed autogenous blood in all infections except tuberculosis.

The procedure requires a sterilized 10 ccm syringe with a vaselined needle, a sterile wide mouth vessel with a capacity of 60 ccm and 20 ccm of sterile water. Ten cubic centimeters of blood are withdrawn from the patient by vein puncture and mixed with the sterile water, one syringe full then being slowly reinjected hypodermically.

Two or three hours later the mixture in the flask has the appearance of jelly. The fibrin is removed by stirring with a rod and some of the remaining solution is given as a second hypodermic injection. A third injection similar to the second is given after another two or three hours. Discoloration and pain at the sites of injection disappear in a few days.

The author is unable to explain the effect of these injections but states that it may be another case of *similia similibus curantur*. It is necessary that the leucocytes be hæmolyzed by a neutral substance such as water.

The method is simple, rapid and safe and requires no special apparatus. As no foreign protein is injected there is no serum reaction.

The clinical results vary. Although in severe cases the effect of the injections may be surprisingly good, the best results are seen in cases of wounds complicated by lymphangitis or erysipelas. Cases of this type may be cured in twenty four hours. In localized infections pain and lymphatic streaks disappear. Pus forms in the wound or around the infecting body. In septicæmia the effects are more marked the later the stage of the condition when the injections are given. In cases of long standing a series of injections given at intervals of two or three days may be necessary. The foreign body responsible for the infection must be removed. There is an increase in the polymorphonuclear leucocytes.

Four cases of infection are reported. The author has obtained good results with the method also in influenzal bronchopneumonia, pelvic infection in women and impetigo and osteomyelitis in children. In surgical cases it may be employed to stimulate the leucocytic defense. KELLOGG SPEED MD

DeBlasi B. Studies on Iso Agglutinins in the Blood of the Newborn. J. Am. M. A. 1931 xxx 776

Mothers may act as donors for their newborn infants without compatibility tests for agglutination and hæmolysis.



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Nye R N and Mallory T B A Note on the  
Fallacy of Using Alcohol for the Sterilization of  
Surgical Instruments *Bst n M & S J* 9 3  
14 14 56

In two cases operated upon with a Bard Parker  
knife blade which had been thoroughly washed with  
hot water and soap rinsed with scalding water and  
immersed in 70 per cent alcohol death occurred in  
forty eight hours from gas bacillus infection

Experiments to determine the effect of the 70 per  
cent alcohol on a gas producing sporulating anaerobe  
showed abundant growth and gas after incubation for  
twenty four hours at 37.5 degrees C. It there-  
fore seemed logical to infer that probably in at least  
one and possibly in both of the fatal cases death  
was due to infection at the time of the operation  
from Bard Parker blades or scissors which had been  
used two or three days previously on a known case  
of gas bacillus infection. The authors conclude  
that immersion in 70 per cent alcohol for one hour  
will not sterilize instruments grossly infected with  
bacillus aerogenes capsulatus

*ITIL C ROBITSH K M D*

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Laskownick S The Bactericidal Power of Lugol's  
Solution (*Bst n M & S J* 9 3 14 14 56)  
Loc u g) *P l k g l k 19* 78

The author found that *in vitro* Lugol's solution  
is fifteen times more bactericidal than a 5 per cent  
tincture of iodine solution

Staphylococci from bouillon culture which were  
died were killed after from one to one and one half  
minutes and the spores of the bacillus subtilis after  
six hours. When Lugol's solution was mixed with  
equal parts of sterile fluid the effect was similar  
to that of a 1:1000 sublimate solution and the  
staphylococci were destroyed after forty five min-  
utes

The effect of Lugol's solution upon tubercle  
bacilli was determined on sputum containing nu-  
merous bacteria. Some of this sputum was treated  
with antiformin and some of it merely stirred in a  
mortar. The dried bacteria were exposed to the  
pure Lugol's solution for one half one two three  
and four hours. The watch glasses were then rinsed  
with sodium thiosulphate and normal sodium  
chloride solution and subcutaneous inoculations  
were made into guinea pigs. All of the control  
animals became diseased but the others were still  
healthy after six months

On the basis of these findings the author has used  
injections of Lugol's solution in the treatment of  
tuberculous abscess. The results will be reported  
later *JURASZ (Z)*

Graham C F Tetanus Its Etiology Prophylaxis  
and Treatment with a Report of Cases  
*J g a M M o t h* 9 3 1480

Predisposing causes of tetanus are (1) punctured  
lacerated and bruised wounds especially of the head  
and extremities which have been contaminated with  
dirt particles of clothing etc (2) gunshot wounds  
especially those due to blank cartridges (3) wounds  
containing foreign bodies (4) wounds received in or  
near stables manure pits hog pens chicken coops  
and in fields where horses or cattle have been kept  
(5) wounds contaminated with street dirt and (6)  
wounds in which there is considerable destruction  
of the soft parts with suppuration. Tetanus has  
developed even in cases of encapsulated splinters or  
other foreign bodies

The exciting cause of tetanus the tetanus bacillus  
produces a toxin some of which entering the cir-  
culation becomes fixed protoplasm of nervous tissue  
and some of which is absorbed by way of the peri-  
pheral nerve filament and traveling along the axis  
cylinders to the nerve center becomes fixed to the  
nerve cells thereby producing the characteristic ner-  
vous manifestations

The most important treatment is prophylaxis. All  
wounds should be well opened thoroughly cleaned  
with hydrogen peroxide cauterized with phenol and  
iodine and then left open to heal being dressed with  
a loose dressing that will not exclude air. If the  
wound is extensive a dressing wet with Dakin solu-  
tion may be used. Idenol solutions permanganate  
boric acid and bromine water solutions are also re-  
commended. The wound should be allowed to heal  
by granulation. A prophylactic dose of tetanus an-  
titoxin 1500 units should be given as soon after  
the injury as possible and if pus develops in the  
wound or if it is uncertain that all foreign matter has  
been successfully removed a second prophylactic  
dose of 1500 units should be administered on the  
eighth or tenth day

The diagnosis is made on the clinical history of a  
wound of a type favoring tetanus and the develop-  
ment after the proper incubation period of tonic  
spasms of the following muscle groups not necessarily  
near the wound the masseters the posterior cervi-  
cal abdominal and spinal muscles and the flexors  
of the extremities. The condition must be differen-  
tiated from strychnine poisoning and tetany

In the treatment a nourishing diet and fluids are  
indicated. The wound should be opened and freely  
drained. The medical or symptomatic treatment of

acute tetanus is mainly palliative. Hypodermic or intraspinal injections of magnesium sulphate solution which usually stop the spasms are not without danger as they have a depressing effect on respiration. The best results have been obtained from thorough antitoxin treatment as soon as the possibility of tetanus is recognized. From 10 000 to 20 000 units should be given intravenously and 10 000 units intramuscularly.

MORRIS H. KAHN M.D.

### ANÆSTHESIA

White J. C. Di Etherization by Means of Carbon Dioxide Inhalations with Some Observations on Intermittent Ventilation and Other Tension During Anæsthesia. *A. A. S.* 1923 ii 347

Since ether is eliminated chiefly through the lungs its rate of elimination must vary directly with the volume of pulmonary ventilation. It is therefore logical to supply to the inspired air small quantities of carbon dioxide which acts as a natural stimulus to the respiratory center. Laboratory findings and the clinical results in forty cases in which this was done have demonstrated the efficacy of this technique.

The method described is indicated (1) when the respiration is definitely subnormal either from reduction of the free carbonic acid or from depression of the respiratory center other than that due to the administration of ether as in cerebral cases (2) in the cases of persons who have had excessive discomfort after previous ether anæsthesia (3) in cases of ventral hernia and large abdominal wounds which

make omitting especially undesirable and (4) in cases of shock and toxic conditions in which the deleterious effects of ether must be minimal.

The method is contra-indicated in cases of excessively high blood pressure, severe cardiac complication, operations on the chest and respiratory passages and severe acidosis.

The technique employed consists in supplying carbon dioxide from a tank to the inspired air in such easily controllable amounts that it stimulates pulmonary ventilation to the desired degree without causing fatigue. Ventilation is nearly doubled when the carbon dioxide of the inspired air reaches 5 per cent and is quadrupled when it reaches 6 per cent. The treatment is given as soon as the wound is closed. The response is instantaneous pulmonary ventilation being raised from 25 to 35 liters per minute. No untoward results have been noted following this procedure.

More study is required before the actual practical value of this method can be definitely known, but on the basis of forty cases the author draws the following conclusion.

The use of carbon dioxide to accelerate etherization by stimulating respiration confers the following benefits: (1) the volume of respiration can be raised to any desired level (2) recovery of consciousness is from three to five times more rapid (3) the blood pressure, circulation and color are materially improved (4) nausea, vomiting and other disagreeable subjective sensations following ether anæsthesia are reduced.

G. OR E. R. McCLINTY M.D.

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Wood F C Further Studies in Radiation Dosage *J R d I* 1923 1 343

This article presents the results of studies recently carried on in the Crocker Institute of Cancer Research in which animal tumors were used as indicators. The experiments were made with a commercial machine running at 100,000 volts. Repeated determinations of human erythema doses showed that about fifty minutes with a 40-cm skin focal distance 5 ma through the tube / mm of zinc plus 1 mm aluminum gave a good erythema. Under these conditions the death point of the tumor used as a standard (Crocker Fund Tumor No 190) was found to be 250 minutes when only the primary rays acted upon it.

In attempts to determine the effect of scattering rays in addition substances with in roentgen capacity approximately that of human tissue were used. When a block of paraffin 10 cm thick was interposed 10 cm above the tumor with a 10 by 10 cm field it was found that the dose required to kill all the tumor cells was 675 minutes instead of 250. The wax absorbed 63 per cent of the radiation. When the tumor tissue was placed directly upon a layer of wax or water only about four erythema doses were necessary to kill all the cells. Secondary radiation from below apparently supplied the additional dose required. Since in man a single erythema dose is usually sufficient to cure a basal cell carcinoma which does not contain pearls it would appear that the tumor tissue used as an indicator is about three and one half to four times as resistant to irradiation.

When the tumor tissue was placed between two blocks of paraffin 10 cm thick and the rays were allowed to strike the tumor material through a 10 by 10 cm opening the skin focal distance being 30 cm and the distance to the tissue 40 cm the dose was 360 minutes instead of 675. This demonstrates the importance of the scatter even through a comparatively small opening nearly one half of the effect being due to it. When the lead opening was increased to 18 by 18 cm the other conditions remaining the same all of the tumor cells were killed in an exposure of 40 minutes. In the last two series of experiments the skin focal distance being 30 cm an excessive dosage would strike the surface corresponding to the skin therefore a large number of portals of entry would be necessary to obtain the desired amount of radiation into the depths. This may be partially obviated by increasing the skin focal distance in which case the differences between the skin and depth dose would become less.

These experiments show that a point is being reached where theoretically all of the cells in a

tumor can be killed even at 170,000 volts. The permanent cure of cancer means the direct destruction of every living cancer cell. Whether this can be accomplished in practice can be determined only from the clinical application of such facts as have been demonstrated. Radiation sickness and the effect of the rays upon normal tissues which are necessarily irradiated simultaneously with the tumor tissue are important factors requiring consideration.

ADOLPH HARTUNG M D

Withers C Certain Biological Principles of Radiation Therapy *Am J Ro Ig* 1936

The fundamental principles of radiation therapy presented are divided for logical discussion into three groups according to whether the phenomena bear upon the physical, histological or clinical aspects of the case to be treated.

The physical phenomena controlling the reaction to radiation depend upon the amount of radiant energy absorbed and this in turn is governed largely by the dosage administered. The profound retrogressive changes produced by rays of radium in tissue cells are ascribed by some investigators to inactivation of the growth promoting factors in cells and by others to an increase in the permeability of the cells due to injury done the cell walls through ionization. It is probable that the direct effect of the incident beam of gamma or roentgen rays is practically nil and that the biological effect depends almost if not entirely upon the amount of ionization produced within the tissues which is a function of the absorption and scattering coefficients.

The structural characteristics which determine susceptibility to radiation are (1) the state of differentiation of the cells (2) whether the cells are in the process of dividing or resting (3) the amount of chromatin in the nucleus (4) the character of blood supply (5) the amount of intercellular connective tissue and (6) the state of metabolic activity of the nucleus in cell which have a secretory function. These factors make it possible to predict on a priori grounds that the growth will or will not regress favorably under radiation properly applied. The radiosensitivity of cells depends not upon the anatomical location but entirely upon the histological picture presented.

The clinical conditions which influence the reaction to radiation may be divided into two groups (1) those purely local in their manifestations and (2) those of a constitutional nature. Among the local conditions are round cell infiltration around the tumor, the condition of the vascular and connective tissue stroma, scar tissue formation, local obliterative endarteritis and lessened resistance due to



previous irradiation. Constitutional conditions include all those which affect the body as a whole and the more necessarily every cell. In the treatment of malignancy it is essential to have the physical functions of the body as nearly normal as possible.

According to our present knowledge all of the neoplastic cells of a tumor must receive a sufficient dose of the rays to bring about their destruction because not only can the incompletely irradiated elements become a point of origin for a recurrence but weak dose are apt to stimulate.

In the practical treatment of malignancy with radium or the roentgen ray the four chief principles to be borne in mind are as follows:

1. The pathology must be interpreted in terms of radio sensitivity.

2. The proper area or areas for irradiation must be accurately determined.

3. The required dose of radiation must be placed in the part of the growth showing active proliferation in order to stimulate normal tissue resistance to the invading neoplasm and obliterate the blood vessels and lymph spaces.

4. The normal tissues must be protected in every way possible so that the natural body resistance will not be weakened by the destruction of continuity of normal tissue stroma intra and peritumoral cellular infiltration and the formed elements of the blood which make up the triumvirate of tissue defenders. These must be conserved and stimulated.

In conclusion the author states that in the treatment of neoplastic conditions the use of radium and the roentgen rays is just as radical and rational a procedure as the use of other physical agents. In a given condition it requires the same surgical judgment as the corresponding surgical treatment but a more complete knowledge of the pathology present and a broader biophysical training.

ADRIAN H. TUNG, M.D.

Wood, F. C. The Limitations in the Radiotherapy of Cancer. *N. J. & St. J. M.* 93, 446.

The period of uncritical optimism regarding radium therapy is rapidly passing. The limitations in radiation therapy are in part physical in part due to the sensitivity of the patient to radiation in part due to the anatomical relation of the tumor and in by far the most important part due to the resistance of the tumor to radiation. A cure can be obtained only through destruction of the cells of the neoplasm itself; there is no evidence of immunity to cancer. The connective tissue sclerosis produced by heavy raying does not destroy the few cancer cells remaining.

The application of the amount of energy necessary to destroy the tumor is most easily done by inserting the radium into the tumor. Uses of radium are still far from agreement as to the relative merits of the insertion of emanation in glass spicules and the use of the element with various metal screens. In the use of either no rays traverse normal tissue except those that escape from the tumor itself and

certainly no beam of ray penetrates normal tissue as is the case when the X-ray is employed.

The lethal action seems to depend not so much upon the length of the X-ray or the gamma ray of radium but upon the amount of energy set free in the individual cell. In X-ray work the low voltage usually seems sufficient; the high voltage treatment is therefore reserved for the treatment of deep tumors. The tendency seems to be away from voltages above 200,000 these being used only for the deepest tumors. Every radiologist knows that certain persons do not bear radiation well and that therefore in such cases deep therapy is out of the question. Cachectic persons do not withstand deep radiation well. Heavy radiation may cause death within a few weeks as the result of progressive anemia, nausea and the development of a condition resembling uræmia. The fact that because of the long strain the bone marrow ceases to function properly is no doubt an important factor.

The site of the tumor is an important factor in radiation tumors of the liver and stomach for instance cannot be irradiated heavily because of the serious damage that would be done to the pancreas, adrenal and sympathetic system. In a number of cases such radiations have caused death following symptoms resembling those of Addison disease. The results in carcinoma of the stomach have been so unsatisfactory that even palliative treatment is unwise. Radiation of tumors of the scalp, nose and breast associated with the danger of causing alopecia and injury to the thyroid, pituitary and salivary glands. In such cases the use of X-ray treatment can be only palliative. When radium can be buried the palliative results are better. In lingual and tonsillar cancer excellent and prolonged palliation has been obtained in rare instances. Carcinoma of the lip can be cured locally by radiation but it is far wiser to excise both the lip and the nodes. In cases of tumors of the extremities full radiation is possible and gives good palliative results; mechanical adjuvants even produce comata of the extremities.

Radiation therapy is limited also by the biology of the tumor. It has been shown that the rate of form of radiation or filtration is shown that the same tumor is killed by the same multiple of the skin erythema dose. Thus radium offers no advantage over X-ray except that it can be inserted into the substance of the tumor and causes less general damage to the body than a powerful beam of X-ray which is passed through normal healthy tissues to reach the tumor. Basal cell tumor of the skin at radiation is curable in 90 per cent of the cases and cured by radiation. Lymphoma comata are often radiosensitive. In highly vascular tumors, although results are very often obtained temporarily because the primary action of the radiation produces capillary thrombosis which shuts off the blood supply to the central parts of the tumor. Eventually however this leaves a shell of tumor cells surrounding the tumor and success depends on the possibility of destroying

the shell entirely. The widely heralded carcinoma and sarcoma dose of Seitz and Wintz rapidly being abandoned. Tumors of exactly the same histological structure often vary greatly in radiosensitivity. Until more is known with regard to radioensitiveness of tumors rad on therapy is largely empirical and recourse should be had to surgery in all case of malignant tumors that are operable. On the other hand all inoperable malignant tumors should be subjected to radiation.

The present field of radiation is the palliation of inoperable tumors and prophylactic postoperative treatment. We may look forward with confidence to greater achievement in the future. In the treatment of cancer our hope at present lies in earlier diagnosis prompt and more extensive surgery and in suitable cases judicious postoperative radiation.

JAMES LARKIN MD

#### Case J T. An Appraisal of the Newer Methods of Deep Roentgen Therapy. *N. E. M. J. & U. d. R.* 93: 357-368

In Case's opinion on the outlook for the future of deep therapy is good.

The new method assumes a voltage of 200,000 or more volts through the X-ray tube with the production of very penetrating rays. A practically homogeneous radiation is obtained by the use of filters of the denser materials. The author employs 0.5 mm of copper and 3 to 4 mm of aluminium. Through an increase in the target skin distance and the use of larger skin areas advantage is taken of increased scattered radiation to obtain a greater depth dose.

There is great need for a biological standard. The present standard of a skin erythema dose is unstable and differently interpreted by different roentgenologists. The best guide at the present time is the table of Seitz and Wintz.

Opinions differ widely on the question as to the length of time that should be consumed in the administration of a course of intensive treatment covering for example from fourteen hours. At the extreme are those who reply one or two days while at the other are those who divide the course into three series given at six weekly intervals. Case prefers to give intensive treatment as rapidly as is compatible with the patient's comfort and this usually means an interval of four to eight days.

The newer methods of deep roentgen therapy are more effective in postoperative cases than radium unless enormous quantities of the latter are available. It is probable that malignancy can be attacked best by radium from the interior and by the X-ray from the exterior.

Roentgen intoxication damage to the skin serious blood changes intestinal disturbance and the stimulation of metastasis are mentioned as possible dangers. Roentgen intoxication is a distressing but not a dangerous complication. Febrile reaction have been encountered and their danger is not as great as that of insufficient dosage. The blood

changes and intestinal disturbances are temporary. Statistics indicate that the danger of causing metastasis is not increased.

In Germany deep roentgen therapy has been in use for about five years. Opitz and Seitz no longer operate upon uterine cancers however early their stage.

CHARLES H. HEACOCK MD

#### Del Buono P. Deep Roentgen Therapy and Skin Reactions. *Am. J. Roentgenol.* 93: 745

There is no true idiosyncrasy to the X-rays. Hypersensitivity and hyposensitivity are better explained by a disturbance in the equilibrium of cells than by any specific or selective action. These disturbances may be due to disease, a toxæmia, nutritional disturbance, local weaknesses as in trophic disturbances or the age of the cell.

A selective action is manifested on the endothelial cell lining the blood and lymphatic vessel. Adipose tissue also seems vulnerable if it is present in excess and covered by loose flabby skin. With the advent of deep therapy the dangers from these factors is increased. Years after skin necrosis may result from injury to the underlying structures especially if there has been trauma. Skin that has been subjected to strong radiation should not be radiated again and should be protected from external injury which may impede nutrition and delay or stop the process of recovery.

The author reviews the literature but does not give specific references.

CHARLES H. HEACOCK MD

#### Muehlmann E. and Meyer O. Roentgen Ray Injuries of Deep Tissues. (*Beiträge zur Röntgenologie* Heft 923 v. 43)

The authors report a case of severe injury to the intestine due to deep roentgen treatment of an inoperable carcinoma of the uterus in a very obese woman. Three months after the first three series of irradiations bleeding from the anus occurred but ceased in four weeks. A second treatment of three series was followed by colitis, severe intestinal hemorrhage and death at the end of eight weeks. Autopsy showed annular necrosis of the sigmoid which had become adherent to the shrunken uterus and the swollen abdominal wall. Two ulcers in the rectum marked distention of the large intestine, a purulent phlegmon of the wall of the cæcum, circumscribed purulent peritonitis, thrombosis in the renal and femoral veins and severe anemia. The field irradiated were highly pigmented and overlapped. No remaining carcinomatous tissue was found.

A second case reported was that of a soldier who died of injury to the larynx due to roentgen treatment for parasitic syphilis following unsuccessful treatment for a year by heliotherapy and an unknown but probably small quantity of roentgen rays. Four epilation doses caused an extensive loss of epithelium (2.5 by 1 cm.) redness and swelling of the face, hoarseness and great difficulty in swallowing.

lowing. As an area of ulceration was still present at the end of two months an attempt at transplantation was made under chloroform anesthesia. This operation was followed by renewed difficulty in swallowing, dyspnea and swelling and tenderness of the neck. Death occurred at the end of six weeks. Autopsy showed necrosis of the major portion of the laryngeal mucous membrane and arytenoid cartilage and marked edema of the aryepiglottic fold and epiglottis. Death was due to suffocation.

According to Meyer neither the histopathological changes nor the obliteration of the vessels which particularly in the intestines is associated with marked thickening of the vessel walls is characteristic of a roentgen ray burn.

The raduration of fat of the lower portion of the abdomen and in the neck in these cases occurred only as the cumulative effect of repeated irradiation of the area. It is not pathognomonic of X-ray injury. Muehlmann attributes the sensitivity of this fat to its poor blood supply and to secondary injury by movements of the trunk and head. Hirtze (Z)

### RADIUM

Fernau A. The Biological Points of Attack of the Radium Rays. (Doblich Angnifunktion der Radiumstrahlung). *Strahlentherapie* 1923; 8: 537.

On the basis of experiments with hen's eggs Schwarz Wohlgemut and Mesernizky conclude that lecithin is the point of attack of radium rays. Fernau and Pauli found that the changes occurred not in the lecithin but in the albumin and gluten of the rayed solutions and were most marked when the salt content, temperature and concentration of the solutions were low.

In similar experiments Fernau found that radiation increases autolysis. If the assumption is correct that the ferments are protein substance with higher ergy the increased autolysis is due to the energy added by the raying. Fernau ascribes the selective action of the rays on carcinomatous tissue to an increase in the activity of the autolytic ferments. This is indicated by the results of experiments made by Freund and Hertwig. Freund found that rayed extracts of carcinoma tissue dissolved cancer cells whereas unrayed extracts did not. Hirtze (Z)

Glasser O. Newer Investigations of Gamma Ray Dosage of Radium. *J. Rad.* 1923; 3: 6.

The author has previously reported methods of gamma ray measurements which have given uniformly consistent results in their application. In this article he reports the results of a series of measurements with a different combination of capsules.

As it was observed that scattered rays caused an increase in the direct dosage calculations could not be made on the basis of distance and absorption only. To measure the total dose the distribution entirely around a given radium capsule or around combinations of several capsules must be known.

Curves resulting from connecting points where equal dosages are delivered in a given time have been designated isodoses. Several such isodoses of single capsules and various combinations are illustrated by diagrams.

The conclusions drawn are as follows:

1. The points of equal doses do not run parallel to the surface of the capsule but show characteristic deviation caused by the absorption relations in the radioactive material and in the filter. The dose delivered to the adjoining tissues at the end of the capsule is only about half the dose delivered in a given time at the midpoint of the capsule.

2. The isodoses make it possible to determine immediately the exact dosage delivered at every point of the field.

3. The shape, number and manner of combination of the capsules are important factors in determining the form of the isodoses. In this the strength of the preparation plays no part.

In conclusion the author mentions that the isodoses of radium emanation bulbs are entirely different on a count of the small absorption in the gas. The form of the isodoses with radium emanation bulbs must be more even and almost parallel to the surface of the container.

Adol. H. Hirtze, MD

Gargano C. The Changes Produced by Radium in the Cells of Epitheliomata. (Litteratura prodotta dalla radiazione del 11/11/1920). *Gliptomati* 1921; 4: 93.

Gargano reports two cases of carcinoma of the temporomaxillary region and one of the uterine cervix which were treated with radium and subjected to several biopsies at intervals ranging from two to six weeks following the radiation.

Though there was a temporary prodromic which the pain, discharge and bleeding ceased, he was unable to note on microscopic examination any permanent regression of the pathological cellular structures nor any necrosis of fibrous tissue. In the carcinoma of the jaw there was a temporary manifestation of apparent arrest of the growth and regression of the superficial epithelium but the underlying structures showed a hyperplastic proliferation of growth which eventually led to the breakdown of the degenerated superficial epithelium.

Gargano is inclined to the opinion that the rays are unable to penetrate to the deeper layers of the epithelium and that therefore only the superficial areas are influenced. However, because the number of cases he has examined has been small, he is unable to draw definite conclusions.

Jam. V. R. C. MD

Ishido T. The Action of Radium on the Intestine. (Ueber die Wirkung der Radiumstrahlung auf den Darm). *Strahlentherapie* 1923; 8: 517.

After comparative experiments on the effect of injecting ulcer material, Behn blue, nitrophenol,

sion of talcum in water into the joint spaces the author injected both soluble and insoluble solutions of radiothorium into the joints of rabbits and studied their effects on the cartilage the synovial membrane and the fat bodies. It was found that the active substances were taken up by the synovial membrane and fat bodies which acted as protectors of the cartilage and bone and underwent hyperæmia atrophy and necrosis. The cartilage and osseous tissue on the other hand appeared to be very resistant to the radio active substances becoming changed only after the synovial membrane lost its power of resorption.

These findings the author believes help to explain the therapeutic effect of radio active substances in chronic joint diseases with regard to the resorption of exudates and the breaking down of pathological formations.

HELLER (Z)

### MISCELLANEOUS

Kellogg J H Should General Hospitals Establish Departments of Physiotherapy? *Mod Hosp* 19 3 JUL 512

A department of physiotherapy may not be needed by every hospital but every hospital needs physiotherapy and a physiotherapist. With this introduction Kellogg presents a most illuminating and significant paper. He emphasizes the fact

that with the exception of a few specific medicines cure only when they aid in changing pathological processes into normal physiological processes. Physiotherapy is far more rational and more efficient than drug therapy.

Hydrotherapy is one of the most versatile as well as one of the most potent of curative agents. By its use it is possible to control the temperature of the entire body or any part of it even with such simple means as a wet cloth. Phototherapy and aerotherapy are rapidly gaining advocates. All of the benefits of sunlight may be obtained by the use of artificial lights such as the arc light the Cooper Hewitt tube and the quartz lamp. In this way a hospital in the north can continue phototherapy during the colder half of the year.

Electricity is used as a means of increasing metabolic activity. Of the many modalities diathermy and the sinusoidal current are the most efficient. Mechanotherapy like electrotherapy has suffered at the hands of charlatans. In the treatment of certain cases of paralysis and paresis it has proved a very efficient aid to electricity.

Trophylactic physiotherapy is of paramount importance.

A progressive hospital must place emphasis on physiotherapy and provide proper facilities and a properly trained personnel.

LEWELLYN R LEWIS M D

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Glebowits h W A Blood Changes in Spontaneous Gangrene (E) b Bl t aender g n b i  
( f n g a n p o n t e ) l e h d l d R Ch  
f g P t o g d 9 3

In spontaneous gangrene the blood shows physical chemical and microscopical changes and is darker than normal. The viscosity and coagulability are increased. The osmotic resistance of the erythrocyte shows the coefficients 9 instead of the normal coefficients 3.5. The haemoglobin content and the color index are low. In some cases the leucocyte count is greatly increased. The ratio of leucocytes to erythrocytes shows a decided increase. Carbon dioxide is found in excess. In addition there is a distinct retardation of the blood stream and a disturbance in the contractility of the capillaries.

The author comes to the conclusion that the changes in the blood are due partly to a still unknown factor and that the increase in viscosity, coagulability and contractility are due chiefly to the excess of carbon dioxide. (Bock (Z))

Spencer W G Melanosis Melanin Melanoma  
Melanotic Cancer B t M J 923 u 907

Melanin is obtained for study from melanized negro skin, the ink of the cuttle fish or melanotic tumors. It consists of one part that contains sulphur and another that turns black on oxidation. Freed from all traces of blood melanin gives no reaction for iron and blood pigment play no rôle in its formation.

The author considers that melanin originates from a colorless substance called melanogen which is closely allied in composition to adrenalin and becomes melanin by oxidation. Bloch holds that melanogen is converted into melanin within the cells by an oxidase enzyme. On exposure to air the urine of persons with secondary melanotic cancer turns dark by oxidation.

Darkening by the formation of melanin from melanogen may be produced by chemical agents such as tyrosin, adrenalin, etc. A preparation of tyrosin called dopa has been used as a stain to determine the presence or absence of melanogen in various tissues. In the human fetus the depigmentation is positive in the epidermis and hair follicles before pigment has appeared. Pigmented cells in the choroid and dermis are not darkened by dopa as they contain no melanogen and therefore do not pigment by phagocytosis. Pigmented naevi stain deeply.

Melanotic pigmented cells originate from the epidermis and pass into the dermis and deeper tissues. Mesoblastic cells take up pigment by phagocytosis except in cases of melanotic cancer in which they develop the ability to form melanin. Collections of pigmented cells scattered among the internal organs and structures reached their location during embryonic life and have no known useful purpose.

Tropical races have much pigment while those living in cold regions have scattered collections. It is considered that melanin of the skin protects the central nervous system against sunlight and injury by ultraviolet rays. Pigment occurs in the pia mater of the base of the brain and on the cervical and lumbar spinal cord about nerves and ganglia in the eyeball in the walls of the heart and large blood vessels in the retroperitoneal and mesenteric connective tissue and in the lungs, liver, trachea and oesophagus.

Pathological melanin formation is noted clinically at the site of a body louse bite in increased skin pigmentation in workers in poorly ventilated coal tar factories and in the pigmentation following arsenic treatment. The effects of ultraviolet light rays vary with the melanin already present. Brunettes are not so easily sunburnt and do not become as easily freckled as blonds. Changes of pigmentation occur in endocrine disturbances—adrenals (Addison's disease) and thyroids (exophthalmic goiter) in diseases of the liver and of the female genital organs in cachexia and in the skin of persons undergoing the open air treatment for tuberculosis. A widely disseminated pigmentation has occurred in the course of generalized melanotic cancer. The brown pigmentation in the heart muscle and the liver and under the mucosa of the colon is melanin, not hæmosiderin.

In the author's opinion adrenalin and melanin are derived from the same substance. When the adrenalin case to take up this substance it collects in the epidermis as melanogen to form melanin by oxidation. In Addison's disease and after the removal of the adrenals the skin becomes darkened by the formation of pigment in the epidermal cells. A solution of melanin has a weaker effect than adrenalin on the blood vessels of the frog but a stronger effect on the rabbit heart.

The color of the hair depends upon whether the genetic cells form melanin or not. The loss of pigmented hair among horses is usually associated as age advances with the development of melanotic cancer. Horses whose hair remains dark rarely have this condition.

Pigmented naevi are prone to undergo malignant degeneration into melanotic cancer. Melanomata

are more common among dark than among white races. Pigmented spots acquired after puberty or late in life may also become malignant.

A few cases of great resistance to the extension of melanotic cancer have been reported, the subjects living many years after excision of the primary growth and several recurrences.

Melanotic cancer of the eyeball usually metastasizes to the liver and runs a rapidly fatal course but cases of survival for ten, twelve, sixteen, seventeen and twenty-four years have been reported.

Melanoma and melanotic cancer occur in the hard palate, olfactory mucous membrane, anogenital region and pia mater of the brain and spinal cord. Melanotic cancer of the abdomen is usually secondary.

Free and early excision is not followed by recurrences *in situ* except in malignant cases in which the disease has spread widely.

WALTER C. BURKET, M.D.

#### Renaud A. Statistics on Cancer in Switzerland

1901-1920 (Quelques renseignements statistiques sur le cancer en Suisse de 1901 à 1920) *Rev. med. de la Suisse Rom.* 1923, 43.

In Switzerland 4,700 deaths occur annually from carcinoma and 300 from sarcoma. These 5,000 cases of malignant tumors are about equally divided between males and females but on the basis of the population the percentage is higher for the males. This is contrary to previous Swiss statistics and those of other countries but the general impression that cancer is more frequent in females than males is due to the fact that females are generally attacked by external cancers while males are generally attacked by deep cancers which are more difficult to recognize but are now being diagnosed more readily by modern methods of examination.

The annual 5,000 fatal cases in Switzerland represent 12.8 cases of every 10,000 inhabitants or 1 case to every 780 of the population.

If only persons over 40 years of age are taken into account there are forty-five deaths from cancer among every 10,000 inhabitants or about one among every 220 inhabitants.

These figures represent 9 per cent of the total number of deaths and 14 per cent of the deaths of persons over 40 years of age.

The ratio of 12.8 cases to each 10,000 inhabitants is higher than that given by any previous Swiss statistics (12.4) and than that in any other country at the present time (France 7.8, Germany 8.8, England 9.7, Belgium 6.6, Spain 5, Italy 6.5, Holland 10.6, Sweden 9.8, Austria 8.0, Japan 6.4, United States 7.4).

The increase in the number of cases of cancer noted in all countries is probably only an apparent increase due to the increase in medical resources.

The increase is due to the deep visceral cancers, the incidence of external cancers has increased only slightly or has decreased.

The chief increase in external cancers has occurred in cancers of the breast. These represent 14 per cent of cancers in women.

Cases of cancer of the alimentary canal constitute more than three-fourths of the cases of cancer in man and more than one-half of those in woman. Cancer of the esophagus and cancer of the stomach are more frequent in the male while cancer of the intestines and cancer of the gall bladder are more common in the female.

The incidence of cancer of the female genital organs is stationary; it constitutes about 20 per cent of cancers in women. FLORENCE CARPENTER.

#### GENERAL BACTERIAL, MYCOTIC AND PROTOZOAN INFECTIONS

New G. B. and Figg, F. A. Actinomycosis of the Head and Neck. A Report of 107 Cases. *Surg. Gynec. & Obst.* 1923, xxxvii, 617.

The authors have come to the conclusion that actinomycosis of the head and neck is the most commonly overlooked condition of these parts; this is demonstrated by the fact that in 107 such cases examined in the Mayo Clinic the condition had been previously recognized in only seven. The number of cases diagnosed in the Clinic has gradually increased from two in 1913 to twenty in 1922. Ninety-eight of the 107 patients were males. The ages ranged from 9 to 69 years. About 70 per cent of the patients were between 21 and 50 years of age.

Since the process is often extensive it is difficult to group the patients according to the area involved. The 107 cases constituted 68.1 per cent of 157 cases of actinomycosis of the head and neck examined at the Clinic during the ten-year period. In 34.6 per cent of these the condition involved the parotid region and cheek; in 31.7 per cent the cervical region; and in 10.2 per cent the submaxillary region. In six cases the tongue and in two the nasopharynx was involved primarily. Seventy-eight per cent of these patients were farmers and 9 per cent were laborers.

In the authors' opinion the infection is carried into the tissues by an injury very frequently with the introduction of a foreign body. A history of such an injury was elicited in a number of cases.

The clinical history in cases of actinomycosis of the head and neck varies with the virulence of the infection and the amount of secondary infection. The condition may occur as an acute phlegmon or may be a slow, indolent process developing in the course of months. The characteristic picture of an indurated mass which later breaks down developing multiple superficial abscesses is probably the most common. The most common symptoms are stiffness in the region involved, pain and swelling.

The diagnosis of actinomycosis must be based on the clinical picture, the finding of the sulphur granules and the microscopic demonstration of the actinomycetes. In the group of cases presenting the

classical symptoms and clinical picture the diagnosis is simple. Many cases require prolonged observation for corroboration of the clinical evidence. If a fresh pocket can be opened the sulphur bodies are usually demonstrated easily but if there is a great deal of secondary infection it is sometimes very difficult to obtain one for microscopic examination. A careful search for the granules should always be made at the time a phlegmon is drained.

The disease may simulate almost any condition occurring about the head and neck: retro-orbital tumor; a malignant mass in the temporal region; a subperiosteal abscess of the scalp and mastoid region; malignancy of the nasopharynx; an infected cyst of the tongue; cancer of the tongue; a tumor at the base of the tongue suggesting malignancy; a sarcoma of the upper jaw and parotid region; osteomyelitis of the lower jaw; a chronic phlegmon of the submaxillary region secondary to the extraction of teeth; a phlegmon of the cheek secondary to pyorrhea; treatment; a chronic phlegmon of the cervical region secondary to tonsillectomy; bilateral cervical adenitis secondary to flu (?) and suggesting malignancy; a chronic indurated cellulitis of the neck; a carcinoma of the cervical region recurring; tuberculous adenitis; bilateral malignant lymphoma of the neck; a thyroglossal duct sinus; tuberculous thyroiditis; and cancer of the thyroid. When there is meningeal or chest involvement other problems arise in the differential diagnosis.

An early diagnosis is the most important factor in obtaining good results in the treatment. Intracranial or intrathoracic extension may develop in advanced cases in spite of treatment. The treatment is empirical, consisting of the application of radium to break down the granulomatous masses and to assist in cleaning up the induration. A saturated solution of potassium iodide is given in gradually increasing doses of 10 to 200 drops three times a day and as soon as softening occurs the abscesses are drained freely swabbed with tincture of iodine and packed open with iodoform gauze. Swabbing with tincture of iodine and packing with iodoform gauze are done daily. The condition was cleared up in this manner in practically all except the advanced cases in the series in which on account of the proximity of the primary lesion to the skull or the chest the infection had extended to the meninges or the thorax. F. A. Fick, M.D.

Wakeley, C. P. C. The Treatment of Actinomycosis by the X Rays with a Report of Nine Cases. J. H. R. D. & Co. Ltd. 1923. x + 129.

In actinomycosis roentgen ray therapy causes the disappearance of the induration around the sinuses and softening of the scar tissue. It should be combined with other measures such as excision or scraping of the sinuses with the injection of 3 per cent iodine in alcohol where possible and the internal administration of large doses of potassium iodide.

Of the nine cases treated by the author the jaw was involved in three the side of the neck in one

the lungs in two and the appendix in two. Two of the patients with actinomycosis of the jaw recovered completely the third developed erysipelas and an epithelioma at the site of the lesion and died. The patient with a lesion at the side of the neck died subsequently with symptoms suggesting lung involvement. Both cases of early involvement of the lung proved fatal. The two patients with actinomycosis of the appendix were cured. The detailed histories of the nine cases are given.

ADOLPH HARTUNG, M.D.

## DUCTLESS GLANDS

Demel, R., Jatro, S. and Wallner, A. Experimental Studies on the Regulation of the Ovaries, Adrenal and Thyroid to the Thyroid in Rats (Bechungen der Ovarien, Nebennieren und des Thyroids an Ratten). Zeitschrift für Vergleichende Anatomie und Physiologie. 1923. 13: 306.

The experiments reported were performed on fifty-one rats. It was found that bilateral oophorectomy caused a slight increase in colloid. In young animals oophorectomy and thymus implantation made such demands upon the young thyroid by the change in the reciprocal action of the endocrine glands that its cells are not equal to the altered requirements and a transformation of the thyroid takes place. Too rapid a transformation appeared to be the cause of the death of some of the rats. When the change occurred more slowly the animals survived possibly because of a slow adaptation of the cells to the new requirements.

When but a little of the transplanted thymus remains alive the transformed thyroid is a colloid goiter but when the transplanted thymus is well preserved the result is a colloid goiter of solid strands of cells deposited between the separate follicles. The thyroid gland of the sexually mature animal is unable to accommodate itself to the changed requirements following bilateral oophorectomy and thymus transplantation and compensates for this inability by enlarging its secreting surface by the formation of papillary proliferation of the follicular epithelium.

In a pregnant oophorectomized animal the thyroid was found very rich in colloid (colloid like struma) four days after the operation but two months later two-thirds of the thyroid suggested the picture of a colloid struma and one third that of a parenchymatous struma. Bilateral oophorectomy with thymus transplantation in pregnant animals caused besides a struma resembling both the colloid and parenchymatous types an increase in secretion (droplets of secretion in the colloid particularly at its margin and in the protoplasm of the cells of the firm portion between the follicles). Following oophorectomy thymus transplantation and unilateral resection of the agus the collection of colloid was less than when resection of the agus was not done.

A reduction of the chromaffin system by the removal of one adrenal gland in animals subjected to bilateral oophorectomy and transplantation of the thymus caused an increase in the function of the thyroid gland but this was less than that occurring in pregnant animals subjected to bilateral oophorectomy and transplantation of the thymus

STEGEMANN (Z)

### EXPERIMENTAL SURGERY

Schafer Sir E S The Relations of Surgery and Physiology *L cet 19 3 ccv 9 5*

From the time of Harvey it has been conceded that animal experimentation is necessary for the advancement of medical science. Many of the older surgeons refused to believe that an operation upon the lower animals could be of value in obtaining information which might be useful in a similar operation upon man. Sir Victor Horsley was born at a time when the importance of animal experimentation as a guide to surgery was beginning to be recognized.

Not long before Horsley became a medical student David Ferrier reported a series of investigations on the mechanical stimulation of the cerebral cortex. The findings of this research refuted the view held by physiologists at that time that the entire cortex functions as a body and that the different centers have no representation in it. Previously on the basis of observations in traumatic epilepsy Jackson had suggested the possibility of localization.

When he accepted the Chair of Physiology at University College London the author was interested in the problem of the removal of definite areas of cerebral cortex and desired the assistance of a colleague who had training in Lister's methods. For this position he selected Victor Horsley. Horsley had acquired great surgical skill and was very energetic performing several experimental operations at a sitting. Later he became oc-

cupied with the duties of private practice teaching etc but the experience he gained in the laboratory was invaluable to him when he received his appointment as surgeon to the Hospital for Nervous Diseases in Queen's Square London.

In 1883 Victor Horsley was appointed by the Clinical Society of London as a member of a committee to study experimentally the effects of removal of the thyroid gland in animals. The report of these experiments was not published until 1888 probably on account of the fact that the results following the removal of the gland were indefinite. Some of the animals became apathetic but others became acutely nervous and died in convulsions. Unfortunately the parathyroids were then not known to have a definite function and what Horsley supposed to be but different phases of the same condition were due to the removal of the parathyroids with the thyroid gland.

The eminent surgeon Joseph Lister who was a student under Sir William Sharpey and trained as an experimental physiologist made many scientific investigations in this field. This included much pioneer work with the microscope and in the preparation of histologic specimens for examination. Probably his most distinctive work was done on the physiology of absorption from the intestines, the vascular changes accompanying inflammation and the coagulation of the blood.

In Lister's opinion surgery could advance only through the aid of animal experimentation. So sure was he of this that when he was asked for a public declaration against vivisection by Queen Victoria he gave his views in no uncertain terms. In his report before the Royal Commission he stated that it was only by his experiments on the lower animals that he was enabled to perfect his system of antiseptic surgery.

In conclusion the author emphasizes the necessity of teamwork between the physiologist and surgeon in the advance of research.

WILLIAM J PICKETT M D



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n p h r t m y c e v f H E R T Z d P L E C E N E B l l  
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c y t c d g e n e r a t f t h e k i d n y J P A Y R Z t c h f  
l C h 1923 4 [232]  
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M J 93 664  
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A l l t l f t A I I l A c k J A m M  
A 93 3  
T h m p t f l p t f p l e e t t h e  
d g f l l m n l l s e D W T o v e N y k  
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f t h l u r t r g m t t t J  
g t t h l f d d N S M R I N W e s t k C h p o g  
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T l m h f f l m m t r y u r t l t t u  
t h f e m a l J H C R A V A N y k M J & M e d R  
93 1

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- A f t p h f t h b l d l i m  
J B A R I J d u l m é d t h 93 x 384  
T t o e s l m p t m n t w t h r u p t f t h  
b l l b t h l b y e t B L L T a d M i n  
B l l t m é m S o c d h d l 93 1 x 86

- I a t e n t c a l l f t h e b l d d e r I A S T F A L J d u r o l m l  
e t c h r 93 x 43  
C h e m i c a l s o l e n t s u e d i n d s o l i g f o r e i g n s u b t c e s  
i n u n y b l a d d e r H L M O R R a n d C I O W E N J  
A m M A 923 1 x 1667  
C l o n f a c i l l c y t i s t h u l c e r a t s f t h e m c u s  
m m t r a v e f t h b l d d e r t h r e e s i m u l a t t h e  
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x 1 437  
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C h i r 1923 1 987  
A l h a m a t u n a c m p l e t n o f u t e r i n e f b m  
L O U B A T d M A G E B u l l S o c d l t t d e g y é c d e  
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u r t h a d t h c k o f t h e b l d e H E I T Z B O Y F E R J  
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t c h 1923 91  
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R K I F F B R O N I C I M A T i f J U r l 923 x  
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t n m t h o d f a s t h t a t h e f l a d d e u t h  
a l p n e m p c r a l l c k B A N S H E R E N a d  
D F C B R N I t n t J M l & S A 93 x 1  
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l l m d 93  
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R A A U J l u l m d e t c h 93 1 439  
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J 3 1 208  
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## SURGERY OF THE JOINTS, JOINTS, MUSCLES, TENDONS

## Conditions of the Joints, Muscles, Tendons, Etc.

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b y t h e a m i t f n o s t g t o s i s R I E R I C I  
n d A P L A R P e s e m e d l a 1923 9  
A b n o m l t s o f g w t h f i n d o d t p h d t e o  
p t h y r J B Z E N D E A T s c h f c b u t h u C y k  
1913 l i x x x 435  
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C R E I F M n t s h r f G e b r t h G y n k 933 l  
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On the synfrom f path l gic cra yno tosis with g d t yeph ly A MERLINT Ch d gani d m me t 193 1 46

Itology f m cul torticoll O HEINEMANN D ut Ch Ztschr f Chr 93 clx 5

So hl d ob tetric l par ly of th arm P PITZEN Zt hr f th P Ch 1923 xl 39

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laly ftraum t cong ftle e r t smag u a d t pe s M IATTE and P B RTRAND Ire mld Pa 923 878

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Soft g f th ar p s m lina and it p a t l nsequa C A DUDAY R m d d la Su se R m 93 l 656 6

B chyd tyf l t b e f th se nd phal ge f the night h i w th t phy f the h d a i m d b f th ght pe t l m jor A FRIL Bull t mém Soc a t d I r 923 ci 58

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Th roe t g gn f th p d l t b e ALBRY a d P r Zt hr f th p Ch 923 xl 47

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Hyd t d ysts f th tbia H COSTANTINI H DU BOUCHER a d A MOLCHERT B l l et mém Soc de ch r d Par 1923 li 45

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K hl d case f th m t tar ph fan cal jo t C ANHAT A M i Kl 93 561

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### F tures and Di loc tion

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Th d f r e t t f p fra i a d o s t l  
an male J T R v r The p Ga 9 3 3 600 [251]

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Fract res of the neck of the femu W C CAMPBELL  
J Am M Ass 923 lxx 1327 [255]  
The fib la s b graft f r ununited fracture of the  
neck of the femu R V DOLBEY Brit M J 1923 u 1 5  
The end re lt f the t atm n n n-operat t e t  
of the femur also a co tnb t n n n-operat t e t  
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Comminuted fract e f the lower end f the femu  
osteosynthe by th tra patellar r ute good result  
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### Orthopedics in General

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l mbo ac al e ion A TANAKA Aichi J E per Med  
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## SURGERY OF THE BLOOD AND LYMPH SYSTEMS

### Blood Vessels

A te la embol m follo ng pe at n d inju es  
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A case of post l tinal phl bit s L J HUENEKENS  
d D M SUPPSTEIN Am J D Child 1923 x 1 447  
E penme t l re arch n the changes prod c d in  
te es by co t son a t d n th heat L VALLORE  
Rif rma med 93 xlix 1 35  
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P 1923 xlix 8  
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### Blood and Transfusion

Th a t n of th blood hldr R CONWAY  
VERNEY Brit M J 93 u 866

Sediment t n of the r ythrocyte by mean f a dr p of  
a t n capill ry blood S BALACHOWSKI Rev m d d  
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923 lx 594  
Stude nio glutamins the blood of the newborn  
B De Bl st J Am M Ass 1933 lvi 776 [257]  
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Th tra sfusi n of blood and the i d cation for its u e  
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and e ternal d e se M DESCARPENTRIES Arch f co  
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Auto-aggl tinat on f h m red cell P MINO  
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Phys logical con d rati s concern g subst itutes for  
blood E ATLER De tsch med Wehn hr 1923 xli  
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h g e the hæmogen c synd om s and in cases of true  
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Th hæm lytopo et c system in the primary nœmias  
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APRIL, 1924

# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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## EDITOR'S COMMENT

**BOTH** the general surgeon and the man whose work is limited to one of the surgical specialties are constantly faced with the necessity of keeping abreast of surgical progress in specialized fields of medicine. The general surgeon must be familiar with many phases of surgical practice. The success of the specialist depends upon an accurate and intimate acquaintance with one particular field of medicine based upon a comprehensive knowledge of the science of medicine and surgery as a whole. For both of these men the abstracts of articles appearing originally in the various American and European journals devoted to the surgical specialties abstracts written by men particularly interested in these specialties will serve as a means of keeping them in touch with the important and essential forward movements which are being developed in different fields of surgery in many parts of the world.

In this month's issue of the *INTERNATIONAL ABSTRACT OF SURGERY* appear a number of particularly interesting articles related to the specialties. Under the title *Thyacoeresis* Mills gives a careful account of Barraquer's method of cataract extraction as carried out in the Barcelona clinic (p. 311). Clifford (p. 312) cites a number of observations of the favorable results of intracisternal injection of mercuric chloride in the treatment of luetic optic atrophy. Of particular interest in connection with the same problem is the report of Siegel and Fraser (p. 314) on hemianopia appearing as the sole clinical feature of a case of secondary lues. Of importance both to the ophthalmologist and the general surgeon is the analysis by Irons and Brown (p. 310) of a second large series of cases of otitis. McKenzie's discussion of labyrinthine deafness (p. 315) and Kerrison's paper on the indications for surgical interference in acute suppurations of the middle ear (p. 315) are important contributions of peculiar interest to the aural surgeon.

The neurological surgeon will find several helpful and interesting abstracts in this month's issue. Gordon Holmes' paper on the clinical manifestations of cerebral tumors (p. 321), Winternitz's report on the results of surgical treatment in eighty-seven cases of brain or cord tumor at St. Stephen's Hospital Budapest (p. 32) and McVeigh's observations of the results of experi-

mental crutching of the spinal cord (p. 323) are particularly worthy of mention.

Of peculiar significance to the gynecologist and obstetrician are Herzfeld's description of the symptoms of tubal rupture in extra uterine pregnancy (p. 343), an abstract of Newirth's monograph on the substitution of irradiation for operation in the treatment of uterine carcinoma (p. 340), the report by Norr and Mäkelberg on the management and results of treatment of vulvovaginitis in infants and young girls (p. 342) and Odermatt's discussion of intra abdominal hemorrhage arising from a ruptured corpus luteum (p. 341). The not infrequent observation of the last condition eleven times in 900 cases operated upon for appendicitis suggests the possibility that a certain percentage of so-called tubal ruptures are in reality confused with rupture of a corpus luteum.

A number of other abstracts covering a wide range of subjects are worthy of careful consideration. Deutsch's discussion of inguinal hernia in children based on the results of operation in 639 cases (p. 32) the observations of Moody, Van Nuy, and Chamblain on the position of the stomach, liver and colon in 600 healthy persons (p. 327), the description by Carman and Fine of the X-ray findings in diseases of the colon (p. 334), Jacobson's study of volvulus of the cecum (p. 333) based on the record of twenty cases at the Viborg Hospital in Denmark, the analysis by Kelly and Ward of the results of treating carcinoma of the rectum with radium alone and with radium combined with operative treatment (p. 335)—such studies represent conclusions drawn by able men from an experience so extensive that the reader cannot help being impressed by their value.

Christophe's report of clinical and experimental research with bone grafts fixed in alcohol (p. 358) suggests many interesting possibilities to the orthopedic surgeon. Kanavel's report of fourteen cases of tuberculous tenosynovitis of the flexor tendon sheaths (p. 357), Cleveland's discussion of suppurative tenosynovitis (p. 356) and Ashhurst and Crossan's analysis of the prognosis and study of the treatment of fractures of the leg (p. 361) involve subjects of primary and practical importance to both the general surgeon and the industrial surgeon.

# INTERNATIONAL ABSTRACT OF SURGERY

APRIL 1924

## COLLECTIVE REVIEW

### DYSMENORRHOEA

By DANIEL H. BESSESEN, M.D., MINNEAPOLIS, MINNESOTA

**D**YSMENORRHOEA is a subjective symptom of pathological menstruation. The multiplicity of the theories on the etiology and pathology of this very common condition leads one to question their validity and to realize the crying need for a more thorough understanding of the subject.

#### OCCURRENCE

The occurrence of dysmenorrhoea varies with the age, sexual relations (101), parity, pelvic pathology, station in life, type of occupation and physical development of the patient. Accordingly, the number of cases which different gynecologists see depends largely upon the class from which they draw their practice. As Emil Novak says, the frequency of dysmenorrhoea is of little importance because it involves the frequency of pelvic pathology. Next to sexual relations which seem to allay dysmenorrhoea, age is the most important single factor in its occurrence. The older the unmarried woman, the more apt she is to have painful menstruation.

Chisholm (18) reports that 58.8 per cent of girls and Hedge (cited by Novak, 104) that 68.8 per cent of girls are free from pain, but this symptom is complained of by 77 per cent of women (Chisholm, 18), 93 per cent of poor, overworked factory women (Morton, 100) and 15 per cent (Kelly, cited by Novak, 104), 50 to 80 per cent (Block, 8), 80 per cent (Meaker, 97), 86 per cent (Gibbons, 46), 60 per cent (Kermauner, 79), 47 per cent (Behan, 5) or 40 per cent (Loyson, 118) of college women.

#### ETIOLOGY

The production of pain during menstruation has been variously attributed to certain anatomical and mechanical factors of general or local nature, chief among which are vascular obstructive, nervous, muscular, ligamentous, functional, inflammatory and nasal disturbances. Special attention is given to membranous dysmenorrhoea and intermenstrual pain.

**Vascular disturbances.** That the pain is due to hyperæmia or local congestion is asserted by Novak (105), Smith (118), Scanzoni (cited by Novak, 104) and Hulbert (cited by Kermauner, 79). In the opinion of Pozzi (cited by Smith, 118), this congestion may be caused by varicocele of the pampiniform plexus with resulting atrophy of the ovary. According to Tobler (135), passive hyperæmia may be caused by unhygienic habits such as long standing, sitting, etc., tight clothing and chronic constipation. Active hyperæmia may be caused by overexertion, onanism, erotic pre-entations, too frequent intercourse and pathological conditions such as chlorosis.

Tobler states that the factors giving rise to normal menstruation are normally developed sexual organs with menstrual hyperæmia, while those giving rise to secondary and sometimes also to primary dysmenorrhoea are normally developed sexual organs with active or passive hyperæmia and menstrual congestion. Conditions which cause primary dysmenorrhoea are incomplete development of the uterus with normal or pathological menstrual congestion with or without venous stasis.



Various explanations have been given for the method by which vascular disturbances produce pain. Gibbons (46) concludes that the pain is due to the tearing of the subperitoneal nerves by the subperitoneal vascular filling. The swelling and congestion of the ovary in the presence of ovarian inflammation will cause pain from distention. Theilhaber (cited by Tobler 135) Menge (cited by Tobler 135) and Schultz (123) state that the uterine contractions are in proportion to the filling of the blood vessels. The uterus must contract to force the blood out of its vessels into those of the small of the back to restrict the bleeding to the uterine cavity and to force the blood from the uterus into the vagina. When the muscle is underdeveloped the blood collects in larger quantities. In aplasia of the uterus and ovary there is no or only scant menstrual molimina. When the uterus is of the puberty type the menstrual distress is extreme. When the small uterus is stretched by the blood pain is the result the blood not being able to pass through the small opening. Kapsel pannungschmerz is due to the stretching of the capsule by the increased blood. Another theory attributes the pain to the contraction of insufficiently developed uterine muscle upon the filled veins (Kermauner 79).

**Obstructive disturbances.** The second etiological factor in dysmenorrhoea is obstruction. Many investigators including Sims (cited by Kermauner 79) Gussierow (cited by Kermauner 79) Mackintosh (cited by Schultz 123) Simpson (cited by Schultz 123) Smith (128) Kennedy (78) and Novak (105) have established that pain may occur as the result of the contraction of the uterus upon the retained menstrual debris or regurgitation of the blood through the tubes (Weckman 139). Obstruction to the flow may be due to clots (Novak 105, Polano 107) amputation or faulty repair of the cervix malignancy or other tumor formation of the cervix or uterus inflammation (Kennedy 78) cervical stenosis or infantile uterus (Polano 107).

**Nervous disturbances.** Many writers stress the neuropathic aspect of the disease. Thus they place either alone or in combination with other factors as a very important characteristic of women suffering from dysmenorrhoea. Patients show a marked difference in their ability to endure mild or severe pain. Stolper (133) Garretson (44) Eppinger (cited by Rothrock 116) and Hess (cited by Rothrock 116) explain the pain on the basis of vagus overstimulation or vagotonia which they assert may be caused by compensatory exhaustion of the thyroid or suprarenals or both or by overaction of the pituitary but there seems

to be little evidence to substantiate these statements. However a neuralgic form a nervous irritability a neuropathic tendency and a functional disturbance of the nervous system have been observed by Iothrock (116) Theilhaber (cited by Tobler 135) Menge (cited by Tobler 135) Kroenig (cited by Tobler 135) Herman (60) Scanlon (cited by Kermauner 79) Hulbert (cited by Kermauner 79) Tobler (135) Schultz (123) and Smith (128). According to Scanlon (cited by Kermauner 79) Herman (60) and Royton (118) these are caused by or associated with anemia contraction of the cervix occupation poor nourishment or mental depression. That the condition is a stigma of hysteria is the conjecture of Vedeler (cited by Schultz 123) Kolischer (82) and Polano (107). These observations are more or less a matter of opinion since they have little anatomical pathological or physiological foundation.

**Muscular disturbances.** Polano (107) and Gussierow (cited by Kermauner 79) refer to infantile uterus as of importance in producing pain at menstruation. Hypoplasia of the uterus with inelasticity of the underdeveloped muscle apparently causes painful contractions. Gibbons (46) and Herman (60) state that there is only one type of dysmenorrhoea the spasmodic. Thus they attribute to contractions of the uterus of clonic or tonic type. Theilhaber (cited by Tobler 135) believe that spastic contractions of the circular fibers of the internal os are responsible for dysmenorrhoea in women with a predisposition to abnormal nervous irritability. Menge (cited by Tobler 135) states that the uterus is normally in rhythmic contraction and that the contractions become painful in the presence of an easily irritated nervous system. Pathologic changes in the genital organs or functional disturbances of the nervous system. In young women who have suffered from infections of the genital tract or acute infectious diseases the cervix may show a contracted hard scarred tissue formation which suggests girdle. This contraction and stenosis of the canal causes the congestion of menstruation to swell the mucosa until it causes contractions of the entire uterine muscle with resulting dysmenorrhoea. In like manner contractions of the internal or external os or neck and displacements of the uterus may cause painful contractions of the uterine muscle as noted by Kalledey (76).

**Functional disturbances.** Dysmenorrhoea may have a functional origin. In Novak's opinion (105) it may be a menstrual colic possibly a menstrual crisis. Menstruation is dependent

upon the internal secretions especially the corpus luteum and variations in these hormones produce variations in the symptoms (Rothrock 116) Fraenkel (35) advances the theory that deficiency of tryptic ferment in the secretions of the uterus allows the blood to clot and that pain is caused by the effort to expel the clots.

Any of these variations would probably be dependent upon disturbances of endocrine metabolism.

*Ligamentous disturbances* According to Gibbons (46) Lennander seeks the cause of dysmenorrhœa in the loose pelvic tissues especially the ligaments of the uterus.

*Inflammations* The type known as congestive dysmenorrhœa or dysmenorrhœa secondary to hyperæmia has been attributed to inflammation. If this were true pain radiating from the ovary during menstruation would be due to inflammation of the ovaries tubes peritoneum or adhesions. Pozzi (128) Smith (18) and Polano (107) believe that pain centered in the uterus would be produced by uterine inflammation.

*Nasal dysmenorrhœa* Because in the lower animals smell is prominent in sexual excitement the belief is prevalent that the genitals are related to the nose. In the opinion of Fliess (cited by Kermauner 79) the connection between the nerves of the nose and those of the genitals is demonstrated by the results of the nasal treatment of dysmenorrhœa. Kolscher (81) does not associate the so-called genital spots with dysmenorrhœa and many authors in recent work question this point in spite of the numerous observations reported. They claim that the application of cocaine to the nasal mucosa may have a general effect and that when cauterization gives relief it does this probably by relieving some underlying condition such as hysteria.

*Membranous dysmenorrhœa* The mechanism of membranous dysmenorrhœa is of much the same origin as is that of other types. Hitschmann and Adler (68 69 70) who have made the latest contribution to this subject believe that the condition is an exaggeration of the normal process which allows the mucosa to hypertrophy the membrane being separated in one case by the contractions of the uterine musculature and in another by destruction of the spongy layer of the mucosa with stripping of the mucosa by the resulting hæmorrhage. This theory appears to be reliable and refutes the views of Aschheim (1) and Polano (107) with regard to the inflammatory origin of the disorder.

*Intermenstrual pain* In the opinion of Rosner Fehling Falmer and Addinsell (cited by Novak

104) intermenstrual pain occurs usually at the time of ovulation and is due to an inflammatory thickening of the ovary associated with chronic inflammation of the tubes uterus and surrounding tissues or chronic pelvic congestion. Drennan (cited by Novak 104) attributes the pain to the escape of the non impregnated ovum through the cervical canal but this seems questionable because of the microscopic size of the ovum.

It is obvious therefore that the etiology of dysmenorrhœa or the mechanism of the production of pain during menstruation is as varied as the pathology. At any rate the etiological factors to attract most attention are the condition of the blood supply to the parts the patency of the uterine canal the patient's functional and neural soundness the condition of the uterine ligaments and musculature and the presence or absence of inflammation or membrane indicating functional derangement. The close interrelation of these etiological factors makes it probable that several of them are involved in any one case.

#### PATHOLOGY

In reviewing the various pathological conditions to which dysmenorrhœa is attributed it appears that pain during menstruation indicates a definite pathological change either local or general. It is merely a symptom and therefore should stimulate a careful search for the cause.

#### Endocrine Pathology

First consideration should be given to the endocrine metabolism upon which menstruation is dependent and to the variations which can easily produce menstrual molimina. The endocrines are so intimately related that it is difficult to separate them even in considering their various functions. A knowledge of the function of the endocrine organs and of their effect upon the organism especially the pelvic organs leads to an understanding of their direct and indirect action upon menstruation.

*Ovary* Much that has been written regarding the ovary relates to the corpus luteum but it is only in recent studies that the activity of the corpus luteum has been differentiated from that of the other structures in the ovary. In the following discussion this distinction is taken into consideration.

*Anatomy* There are two nerve supplies in the ovary the splanchnic and the sympathetic. They enter at the hilus and course around the ovary. In general they stand in relation to the vessels passing into the follicular apparatus and then either passing out again or terminating at that

point. There are definite end-organs on these terminations to the *membrana propria* and at times ganglion cells are found indicating the activity of the sympathetic system in the ovary. These large ganglia have many neurofibrillae and dendrites which connect with the ovary (Aschner 3 Wallart 138 Brill 12).

The function of the ovary may be considered in its relation to physiological processes and to other organs. The physiological processes with which it is most intimate are menstruation, the menopause, the changes in the body following oophorectomy, pregnancy, abortion, coagulation of the menstrual blood, vasomotor changes and dysmenorrhea.

**Functional relation to physiological processes.** It is generally conceded that under normal conditions the ovary is the influence controlling menstruation. All the *en loe* changes in this function but the menarche and menopause mark the onset and completion of the activity of the ovary. Hirst (67) notes that delayed menstruation may be hastened by extract of the whole ovary. When a patient continues to menstruate after removal of the ovaries, some portion of an ovary has been left in the abdomen (Novak 104 Findley 33). These observations tend to show that the ovary is the most important element in menstruation.

Removal of the ovaries or cessation of their activity induces the menopause. The symptoms which are frequently complained of at this time are of endocrine origin. Novak (104) states that in the surgical menopause the severity of the symptoms has no relation to the patient's age, but other writers report that the younger the patient the more severe the reaction. The symptoms are due mainly to persistence of the action of the thyroid which in the absence of the supposed action of the ovary stimulates the pituitary and adrenals and thus produces the vasomotor changes typical of this period. Relief may be obtained by the use of ovarian extract (Hirst 67 Morley 99 Hirsch 66). Mental disturbances are apt to occur especially with the surgical menopause (Cordon 40).

Ablation of the ovaries causes diminution in the quantity of phosphates excreted in the urine, a temporary variation in the nitrogen metabolism, a diminished intake of oxygen and output of carbon dioxide and a gain in weight. As shown by Hill's (64) experiments all of these changes may be remedied in part by the injection of ovarian extract.

Frank (39) believes there is hyperactivity of the ovary during pregnancy.

After the sixth week of pregnancy the ovaries may be removed without causing abortion. Ovarian deficiency before the sixth week has been found to cause abortion; the remedy is autotransplantation of the ovaries or the administration of ovarian extract. In cases in which transplantation has been done there have been a few takes and in two instances pregnancy occurred after the operation. Heterologous transplantation has not been successful. Transplantation is not considered dependable but the risk of the operation is not increased by tucking the ovary into a pocket in the muscle and occasionally this relieves the artificial menopause or prevents abortion before the sixth week of pregnancy (Bell 7 Novak 104 Chalfant 16 Martin 92 Frank 39).

Schucke's experiments show that in the ovary more than in the uterus, in the uterine mucosa more than in the myometrium and in the myometrium more than in myomatous structures there is a substance which reduces the coagulability of the blood. Blood mixed with a few drops of menstrual serum will remain uncoagulated in a glass for a week.

The same substance will cause a vasodilatation of peripheral vessels. The conclusions are that the ovaries are responsible for a great deal of the bleeding from the uterus but there is such a complication of factors that much study is required to explain certain cases satisfactorily.

Dysmenorrhea has been attributed also to hypofunction of the ovary and in some cases the administration of ovarian secretion or whole ovary gives good results (Block 7 Kalleley 6 Dalché 24).

**Functional relation to other organs.** The organs with which the ovary has interaction are the genital breasts and adrenal pituitary, pineal, thymus and thyroid gland. These are the organs with which the study of menstrual processes is chiefly concerned.

Oophorectomy before puberty has not been done in the human female but the results in animal indicate that after this operation the genital tract remains undeveloped. Hypofunction in the adult produces atrophy of the external genitals. It is found that injections of ovarian extract slightly check the atrophy of the genitals following oophorectomy. As reported by various authors, injections of ovarian extract exert a definite influence on the genital as shown by the results in the treatment of kraurosis vulvae. The vessels of the genitals become dilated and the growth of the genital organs is stimulated. Apparently this substance is present also and in

more potent form in the placenta. It may be extracted by water and heat or by alcohol and ether. Experiments on animals demonstrate the hyperæmia and growth stimulus produced by these extracts. These observations are based on the studies of Novak (104), Graves (5), Herrmann (63), Kalledey (76), Schickele (11) and Fellner (cited by Aschner). The ovary exercises a developing influence upon the tube, uterus and mammae. Halban asserts that when the ovary is present any of these organs will grow and function after transplantation, but that in the absence of the ovary they will atrophy. If the ovary is removed before puberty, the uterus and tubes do not develop. After maturity, oophorectomy does not influence the breasts.

Ovarian function apparently exerts a cyclic stimulation on the breasts. In the opinion of Herrmann (63), Aschner (2), Frank (39) and Novak (104), this accounts for the changes occurring in the breast during pregnancy.

Varaldo (136) states that pregnancy produces resistance and oophorectomy diminution of resistance to injections of adrenalin. Repeated injections cause macroscopic diminution in the volume of the ovary. Gradual adrenalin poisoning causes microscopic changes in the ovary whereby the glandular element is replaced by connective tissue. The adrenals seem to act inversely to the ovary. According to McAuliff (95), hypertrophy of the one leads to atrophy of the other.

Removal of the ovaries may be followed by acromegaly or overgrowth of the pituitary, as noted by Goldstein (48), Graves (52), Cohn (20) and Roessle (114). This shows that the pituitary is antagonistic in action to the ovary, the one neutralizing the other. The pituitary appears to act inversely to the ovary. McAuliff (95) states that hypertrophy of the one leads to atrophy of the other. Frank (39), Garreton (44), Schickele (121), Graves (52) and Kalledey (76) believe that hypofunction of the ovary may be secondary to hypophyseal disturbances that ovarian extract may be given for hyperpituitarism and that the effects of ovarian extracts can be counteracted by pituitrin. In a series of forty-one cases in which the symptoms were ascribed to ovarian hyperfunction, the bleeding was checked by the use of pituitrin. As pituitrin has been found of value to check uterine hemorrhage in obstetrical cases, its effect in these forty-one cases may have been due to its action on the uterine muscle.

The pineal gland atrophies at the time of puberty and is reported by McAuliff (95) as acting

inversely to the ovary, hyperactivity of the one leading to atrophy of the other. These statements apply also to the thymus.

Hyperthyroidism seems responsive to treatment with ovarian extract, since ovarian feeding decreases the size of the thyroid (Garretson 44, von Graff 51). According to McAuliff (95), the thyroid is antagonistic to the ovary and hypertrophy of the one leads to corresponding changes in the other, but the evidence does not completely corroborate this conclusion.

**Hyperfunction.** Hyperfunction of the ovary is usually not noticed clinically before puberty. It leads to menorrhagia and metrorrhagia in the adult and to premature sexual development in children. Overfunction of the ovaries may cause osteomalacia as observed by Cohn (20), Novak (104) and Frank (39). Eighty-seven per cent of cases of osteomalacia during pregnancy and 93 per cent of cases in which the condition occurs during the puerperium can be cured by removal of the ovaries. In Frank's (40) experience, adrenalectomy cures 100 per cent. Frank classifies ovarian hyperfunction clinically as follows:

1. **Congenital type.** This is indicated by precocious menstruation and precocious puberty and may be associated with ovarian, pineal or adrenal cortex tumor.

2. **Puberty type.** Hyperfunction in early puberty causes short extremities and a long trunk and severe menorrhagia or metrorrhagia.

3. **Adult type.** The primary factor is evidently thyroid deficiency. The condition must be differentiated from pelvic inflammatory, general and syphilitic conditions.

4. **Prelimacritic type.** This presents the same characteristics as the adult type.

5. **Secondary type.** Transitory menorrhagia and metrorrhagia are associated with early stages of Graves' disease and may occur after thyroidectomy. This hyperactivity of the ovary is followed by aplasia.

**Hypofunction.** In adults, hypofunction of the ovary leads to amenorrhœa. In children, it produces infantilism. There may be amenorrhœa with obesity, genital aplasia and status lymphaticus. Godbey (47) claims that in hypofunction of the ovaries, the onset of menstruation may be normal and the flow may occur normally for four or five years but is then discontinued with possible imperfect development of the sex characteristics. Frank (39) classifies hypofunction clinically as:

1. **The congenital type.** This is associated with deficiencies in other organs.

2 The primary type This is associated with local atrophy nervous symptoms decreased sugar tolerance increased adrenalin glycosuria a relative neutrophilic leucopenia and lymphocytosis a decrease in the eosinophiles increased coagulation time increased lipid content and a change in the reaction to drugs (Frank 39 and Aschner 3) In five of twenty five cases of hypofunction the lipoids were normal or decreased They were determined by mixing 1 ccm of blood or serum with 10 ccm of 95 per cent alcohol and adding distilled water to 5 ccm of the filtrate drop by drop till clouding occurred As reported by Zoepfritz (143) the number of drops necessary to produce clouding determines the concentration of the lipoids

3 The secondary type This is associated with Graves disease hypophyseal disturbances Addison's disease and persistent thymus

Ovarian insufficiency may occur at the menopause or may be due to surgical removal of the ovaries The menopausal symptoms are given by Bell (7) and Aschner (3) as psychic (mental irritability or instability) vasomotor (flushing sweating chills cardiac and intestinal distress) and metabolic (deposition of fat and retention of calcium salts)

Extracts Extracts of the ovary are used by various practitioners in the treatment of late development of puberty infantilism obesity and amenorrhea and irregular menstruation and menorrhagia of youth These extracts are supplied in powders compressed tablets and ampoules for intravenous injection Intravenous injection is the best method the injections should be given in series of twelve twenty four or thirty six one being given daily for two to four weeks and then at intervals of from two to five days for two or more months Usually considerable time elapses before the results are noted (Hirst 67)

Corpus luteum The lutein cells are developed from the granulosa cells of the follicle The paralutein cells are derived from the theca interna According to Frank (38 39) the development of the transitory body the corpus luteum takes place in a four stage cycle

1 Liferotation The theca externa is vascular the theca interna has lipid-containing cells and the granulosa epithelium becomes stratified

2 Vascularization The theca externa and interna are essentially unchanged The granulosa cells are distended with lipid and lutein contents

3 Ripeness The theca interna is barely distinguishable from the externa The granulosa has become what is known as lutein cells

which are arranged as the cortex of the adrenal and are roofed off by the connective tissue

4 Regression The clot fills with connective tissue the lutein cells become small and vacuolated and the vessel become narrow Kreis has compared the arrangement of the capillaries of the corpus luteum to those of the liver

Marcotty (91) and Fraenkel (35) find that the corpus luteum forms midway between two periods while Herrmann (63) observes that the bursting of the follicle allows the corpus luteum to attain its maximum growth eight days later When menstruation begins the corpus luteum begins to regress and when menstruation ceases the corpus luteum reforms Persistence of the corpus luteum prevents the occurrence of menstruation Frank (39) and Herrmann (63) found that it inhibits ovulation The corpus luteum like the uterine mucosa is cyclic and the latter depends upon the former Loeb (cited by Herrmann 63) after extirpating the corpora lutea in guinea pigs within the first seven days following ovulation found that the next ovulation occurred earlier whether pregnancy occurred or not Three weeks after ovulation when the uterus is smallest and the mucosa thinnest the corpus luteum pureum is beginning to cicatrize When ripening of one follicle reaches a certain stage the development of others is inhibited until the cycle is complete Inactivity of the corpus luteum is said to produce a new ovum Artificial impregnation apparently takes best eighteen days after the onset of menstruation in the twenty eight day cycle and on the eleventh day in the twenty-one day cycle the ovum requiring eight or nine days to travel the tube These observations have been made by McDonald (96) Miller (98) and Frank (39)

Of interest in this connection is the relation of ovulation to menstruation In an effort to find out whether or not ovulation occurs with menstruation Leopold and Vironoff (85) studied forty two of a possible 215 pairs of ovaries A careful history especially of menstruation was taken and the ovaries were thoroughly sectioned and carefully examined It was discovered that thirty of the women had ovulated at menstruation and twelve had ovulated at times other than that of menstruation Riebold (111) found that usually menstruation is associated with ovulation but that these processes may take place independently of the uterine hemorrhage Frank (39) states that the pre-ovulation may be coincident with maturation of the follicle but does not accept this as proved Oestrus may occur with or without ovulation Frankl (41) says that the

death of the ovum is marked by the rupture or disappearance of the corpus luteum. When the old secretion disappears the menstrual flow begins again. Absence of the corpus luteum causes menstruation (Geist 45, Frankl 41).

**Chemistry.** In the function of menstruation the basic factor is probably the chemistry of the corpus luteum. According to Miller (98) the corpus luteum of pregnancy differs from the corpus luteum of menstruation in that it contains no fat. Marcotty (91) states that with active cell formation and mitoses there is possible degeneration of the organ and that fat is already present in the corpus luteum early in the premenstrual stage. Fat infiltration takes place first in the theca lutein cell beginning in the periphery and then occurs in the granulosa cells. In the later stages the theca lutein cells are poor in fat. The fat consists of neutral fats, cholesterol compounds, cholesterol and phosphates. Cholesterolinæmia tend more toward menstruation than does lecithinæmia. Menstruation is not only a cellular but also a chemical abortion.

The corpus luteum contains trypsin lipase, erepsin and amylase. In experiments by Halban and Frankl (57), Frank (40) and Aschner (2) injections of trypsin produced changes in the uterus similar to those of œstrus.

Aschner (2) intimated that the presence of trypsin in the ovary is an important factor responsible for the non coagulating character of the menstrual blood. Schickele found a substance in the internal genitalia which reduced the coagulability of the blood and caused dilatation of the peripheral vessel.

The experiments of Halban and Frankl (57) demonstrated that trypsin prevents or delays the coagulation of the blood. Following menstruation no trypsin is present in the uterus. At the time of menstruation the blood of the body remains unaltered as regards coagulation but the uterine flow is almost uncoagulable. Cristae and Denk (21) state that if the blood passes through the uterine cavity without passing through the uterine mucosa it will coagulate.

Frank (40) and Halban and Frankl (57) associate the presence of trypsin also with the formation of the decidua like cell of the premenstrual stage. The injection of trypsin into the uterus produces changes in the uterine mucosa similar to those of œstrus. It is thought that these cells are formed by the trypsin ferment in the uterine glands preceding menstruation.

The remaining studies of the chemistry of the corpus luteum suggest a two fold action of this

body. Guggisberg (54) states that the corpus luteum has a variable action at one time stimulating and at another checking the flow. In a careful study of a small series of cases Novak (102) found that patients with a surplus of paralutein cells gave a history of irregular bleeding. This led him to the conclusion that the secretion from these cells differs from that of the lutein cells, the one probably controlling menstruation and the other the implantation of the ovum. Experimental work based on this theory which was conducted in the laboratory and then elaborated in fourteen clinical cases showed that the corpus luteum contains two substances, luteolipoid and lipamin. The luteolipoid checks hæmorrhage and diminishes the coagulation time while the lipamin a lipoprotein prolongs the coagulation time and increases hæmorrhage. When the follicle ruptures the corpus luteum forms. The early corpus luteum which contains an excess of lipamin causes the blood flow of the period while the late corpus luteum which contains an excess of luteolipoid checks the flow. Injections of lipamin once to three times daily over a period of from three to eight days causes a profuse flow at the next period and this can be checked by one or two injections of luteolipoid (Seitz, Wintz and Fingerhut 126).

If the data in the preceding four paragraphs are correct—and they seem to be confirmed by experimental and clinical evidence—the conclusion is permissible that following ovulation and the beginning of the formation of the corpus luteum the ferment trypsin is formed in the uterine gland perhaps by stimulation of the paralutein cells. This ferment in turn stimulates the formation of decidua like cells in the uterine mucosa and dilatation of the peripheral vessels of the part. The gradual increase in the trypsin lead to increased permeability of the vessels, therefore when the paralutein cells have reached the culmination of their development the bleeding of menstruation begins. The mechanism of this flow is at first a diapedesis governed by the trypsin in the glands of the uterus which prevents coagulation. If the blood collects in such large quantities as to rupture some of the vessels hæmorrhage may take place also through rhexis. When this occurs the blood does not come into contact with the trypsin in the glands and clotting therefore occurs. With the onset of menstruation the lutein cells become prominent and the paralutein cells begin to regress. The secretion from the lutein cells checks the hæmorrhage and stops the flow. Following menstruation there is no trypsin in the uterine glands.

Functional relation to physiological processes The anæstrus or first stage of the œstrus cycle is characterized by a single layer of epithelium and a delicate pale connective tissue stroma. During the pro-œstrus the uterus is larger and congested the epithelium hypertrophies the blood vessels of the connective tissue are engorged and the glands become large and tortuous. The premenstrual period is characterized by extreme swelling of the glands with secretion and the formation of decidua like cells. During œstrus multiplication of the epithelial cells covers over denuded portions of the uterine wall. It is generally accepted that this function is governed by the corpus luteum.

It has been demonstrated by experimentation that the growth of the decidua like cells is dependent upon the presence of a foreign body in the uterus only if a corpus luteum is present; not otherwise. Ioeb (cited by Frank 36) found amitotic nuclear proliferation on the fifteenth day after the formation of the corpus luteum. Very extensive experimentation shows that stimulation of the uterus in the presence of the corpus luteum produces decidua like cells, the maternal portion of the placenta. After removal of the ovary or destruction of the corpus luteum the decidua like formations cease. The corpus luteum control the attachment of the ovum to the uterus through decidua formation. Frank (36) Herrmann (63) and Leighton (84) observe that the corpus luteum stimulates the decidua formation and that this in turn acts upon the corpus luteum continuing its activity until the termination of pregnancy.

The corpus luteum is a necessary element in early pregnancy. Its absence or removal or destruction results in abortion certainly before the sixth week and sometimes at later periods of gestation. Frank 39 Novak 104 Miller 08 DeLee 26 Smith 129 Fienkel 35 Burnam 14 Mackenzie 89 and McDonald 96.

Functional relation to other organs. According to Frank (36 37) and Bucura (13) the breasts show changes of a cyclic nature which are dependent upon the corpus luteum. Lactation diminishes fertility and menstruation.

Enlargement of the uterus is apparently one of the processes of the corpus luteum.

The corpus luteum seemingly causes hyperæmia of the genital and cures kraurosis vulvæ.

Hypofunction of the ovary may be denoted by amenorrhœa oligorrhœa the menopause or the symptoms which follow oophorectomy: dysmenorrhœa congestive disturbances nervous disturbances infantile sterility the vomiting

of pregnancy repeated abortions or kraurosis and pruritis vulvæ (Burnam 14 Leighton 84 Dannreuther 25 Graves 52 Frank 39 Novak 104).

Extracts. Extracts of the corpus luteum should be obtained from pregnant animals otherwise they are useless (Dannreuther 25 Frank and Rosenblood 40). According to Frank (39) the administration of the extract does not produce sufficient change to indicate that its use will cause pregnancy hyperplasia of the breasts. It may be used in all cases of hypofunction of the corpus luteum and in some cases will be beneficial. In the past its use has been found without effect in cases in which it was clearly indicated. It is possible that in these cases the extract was of inferior quality or that the amount administered was not sufficient. Intravenous injections are of much more value than oral administration the latter may have very little effect.

Interstitial gland. Various conclusions have been drawn with regard to the interstitial gland. Loeb states that there is no such organ in the guinea pig and others have been unable to find it in the human female. Studies made by Frank (39) Graves (52) Cohn (20) Schochet (122) Halban (56) Herrmann (63) and Rouville (117) seem to indicate that it is not marked in the human female and is most abundant during pregnancy after the third month. Some investigator have been able to find it in the ovaries of all animals. Its secretion is reported as supporting that of the corpus luteum and it is considered by several investigators as important in determining and maintaining sexual development. Frank (39) regard its function as questionable and Bucura (13) believes it has no function at all.

The follicular structure, the only portion of the ovary which functions before puberty has been reputed to govern the growth of the internal and external genitalia. Fraenkel (cited by Schickel 121) concluded from his studies that the follicle bursts on the nineteenth day after the beginning of menstruation. If the follicular system fails menstruation ceases (Schickel 121).

Thyroid gland. The relation of the thyroid to physiological process is that of control. The index of the activity of the thyroid is metabolism. The thyroid enlarges normally during puberty menstruation pregnancy lactation castration sexual excess and occasionally at the menopause (Novak 103 104 Sehn 125 Cohn 20 von Graff 51 Frank 39 and Culbertson 22).

Oophorectomy produces an atrophic thyroid says Frank (39) though Culbertson observes that in some cases when the ovary ceases to

function the thyroid may continue to act for a time thus stimulating the adrenals and pituitary which cause vasoconstriction with hypertension and hot flashes. Ordinarily however the thyroid becomes inactive with the cessation of the activity of the ovary.

As there is a relation between the thyroid and the ovary the ovary may be involved in any case of thyroid enlargement. The thyroid is decreased in size by ovarian feeding and is most active during pregnancy (Frank 39 von Graff 51 and Aschner 3).

In experiments performed by Sweet and Ellis (134) ligation and section of the pancreatic ducts caused enlargement of the thyroid with an increase in the amount of colloid and of iodine in the colloid and atrophy of the spleen.

That hyperfunction of the thyroid leads to Graves disease is generally recognized. Pelvic disease as well as disease in other parts of the body may react on the thyroid. The effects of hyperthyroidism upon the blood, urine and menstruation are most striking. The blood shows a relative polymorphonuclear leucopenia and a relative lymphocytosis; the leucocytes average 45 to 68 per cent instead of 75 per cent and the lymphocytes 50 per cent instead of 25 per cent. The total number of white cells is 5,000 to 6,000. When the lymphocytes are not high there is an eosinophilia. The distinguishing characteristic of hyperthyroidism recorded by Sehrt (125) is an increase in the coagulation time. In the opinion of Salzman (10) the thyroid or some tissue responsible to the thyroid for its stimulation causes earlier coagulability of the non-coagulable menstrual blood and thus shuts off the hemorrhage earlier. The urine shows an increased glycosuria with a diminished tendency toward albuminuria. The clinical observations of such men as Frank (39) and Kocher (cited by Sehrt 15) show that the menstrual function is greatly disturbed by Basedow's disease, this condition usually leading to amenorrhea and oligorrhea. Godbey (47) Bourne (9) and Krusen (83) assert that when hyperthyroidism occurs earlier in life the onset of the menses is late and the menopause occurs early. Pain during menstruation may be due to hypersecretion of the thyroid. Graves disease may lead to ovarian insufficiency.

Hypofunction of the thyroid has an equally far reaching influence upon the organism leading to cretinism and myxœdema with adiposity. The blood shows the same variations as those found in hypersecretion except that the coagulation time is increased. Sehrt (125) and Frank (39) almost constantly find menorrhagia in this con-

dition. The uterus may be infantile, abortion may occur frequently and sexual function may be decreased. As shown by studies of Dalch (24) Garretson (44) Young (142) Bell (6) and Sehrt (125) dysmenorrhœa also may be due to hypofunction of the thyroid.

The data cited seem to demonstrate that the effect of the thyroid upon the coagulation of the blood during menstruation is the result of the influence of the ovary upon the coagulation secondary to variations produced in ovarian function by the thyroid.

**Adrenals.** Novak's (103) analysis demonstrates that the medullary portion of the adrenals is derived from the nervous system and belongs to the chromaffin system. The cortex is derived from the same anlage as the gonads.

**Functional relation to physiological processes.** The adrenals are essential to life. The chromaffin bodies and adrenal medulla stimulate metabolism. In the opinion of Frank (39) and Cohn (20) the adrenal causes lipoidemia and pigmentation.

**Functional relation to other organs.** Adrenal disturbances are apparently associated with ovarian disturbances. The observations of Garretson (44) Varaldo (136) McAuliff (95) Novak (103) and Stolper (131) demonstrate that dysmenorrhea may be due to vagotonia secondary to adrenal exhaustion. Pregnancy produces resistance and oophorectomy decreases resistance to injections of adrenalin. Repeated injections cause microscopic changes in the ovary whereby the glandular element is replaced by connective tissue. McAuliff states that the suprarenal acts inversely to the ovary and that hypertrophy of the one leads to atrophy of the other. Hypertrophy of the adrenal is observed during pregnancy and following oophorectomy. In the menopause there is increased adrenalin glycosuria. Hyperovarianism raises the sugar tolerance since adrenal glycosuria increases after oophorectomy and decreases in hyperactivity of the ovary. It is logical to conclude that the ovary acts as a check on the adrenal system.

**Hyperfunction.** Hyperfunction of the adrenal is attended by sterility and masculinity for which there is no treatment. The effects on the reproductive system of suprarenal tumors such as carcinoma, sarcoma and hypernephroma are divided into two classes. Obesity occurs in both sexes. Apart from the development of the hair the development of the sexual organs is not marked. In the male the changes result in the muscular infantile Hercules with true sexual precocity. Change in the sexual organs may be associated with suprarenal hypertrophy without



tumor. Grecchio's patient (cited by Novak 104) contracted gonorrhea twice in the rôle of a male. Frank (38) noted that cortical hyperfunction in adults results in hypertrichosis, pigmentation, lipodystrophy, cholesterinemia in infants in precocious puberty *in utero* in feminine pseudohermaphroditism.

**Hypofunction.** Frank (30) and Culbertson (22) have reported retarded sexual development with suprarenal hypoplasia and other cases have been reported in which there was a lack of development of hair and genitals. Medullary hypofunction leads to Addison's disease. Adrenal insufficiency also produces sterility. In the four recorded cases of pregnancy with Addison's disease no abnormalities occurred. Marked adrenal aplasia is found also in status lymphaticus. Adrenalectomy raises the blood pressure temporarily but causes weakness, glycosuria and death.

**Hypophysis.** Functional relation of hypophysis to physiological processes. The anterior lobe of the hypophysis apparently controls body growth. An influence which retards growth at one stage of development may accelerate it at another. According to Lapielki (108) and Guggisberg (54) the secretion of the anterior lobe of the hypophysis reduces the blood pressure while that from the posterior lobe increases the blood pressure. The two secretions counteract each other. The influence of the nervous portion of the hypophysis activates the uterine muscle.

Functional relation to other organs. Disturbances of the hypophysis are very often associated with disturbances of the ovary. The organs of internal secretion are closely associated with menstrual and other pelvic disturbances. The use of the extract of the posterior lobe of the hypophysis in conditions of uterine hemorrhages and inflammations of the tubes and ovaries which are otherwise intractable is very satisfactory as has been noted by Javle (74) and Godbey (47). Novak (104) has reported pituitary hypertrophy with occasional physiological symptoms occurring in pregnancy. Ovarian injections cause a fall in the pressure in the opinion of Graves (52) this can be counteracted by pituitrin. Frank (30) has claimed that hypofunction of the ovary may be secondary to pituitary disturbances.

**Hypofunction.** The studies of such men as Novak (104) and Froehlich demonstrate that pituitary insufficiency may cause infantilism of the genital organs associated with obesity, mental dullness, sexual hypoplasia and amenorrhea. The administration of pituitrin with other endocrines gives relief. This condition is due probably to the anterior lobe though the posterior

lobe is held responsible for the increased sugar tolerance. Cushing (cited by Roessle 114) points out that sexual hypofunction may result from the removal of the hypophysis and Kalleley (16) states that menorrhagia occurs from hyperfunction of the ovary developing from hypofunction of the hypophysis. Lack of development of the breasts, infantile uterus, hysteria and even convulsions may result. Further support is given to these reports by Roessle (114) and Godbey (47).

**Extracts.** Extracts of the pituitary have their most marked effect upon the female genitals. Two-thirds of women with infantilism or sexual hypoplasia of the uterus, ovaries etc. show signs of regular menstruation following the administration of 1 ccm. of pituitary extract daily. Hofstaetter (71) regards the explanation of the action of the medication as still hypothetical. Fromme (43) mentions its use in cases of amenorrhea not centered in the uterus and suggests that its action may be due to regular contraction of the uterus stimulating regular bleeding. Novak (103, 104) finds that the posterior lobe gives an extract which exercises a powerful influence over the uterine muscle, stops postpartum hemorrhage and acts as a diuretic and an enterokinetic.

**Pancreas.** The pancreas is essential to life. Pancreatic hyperfunction is unknown. Pancreatic hypofunction causes diabetes. Pancreatectomy causes glycosuria, polyuria, emaciation and death. Biell (cited by Frank 39, Culbertson 22) states that the lymph through which the pancreatic secretion is supposed to be carried relieves the symptoms of hypofunction.

Ligation or section of the pancreatic ducts causes simple atrophy of the spleen to one-third its size and enlargement of the thyroid with an increase in the amount of colloid and the amount of iodine in the colloid. In experiments carried out by Sweet and Ellis (134) it was found that this operation delayed the onset of tetany following complete extirpation of the thyroid and parathyroids.

The pancreatic function has a relationship to ovarian disturbances. Lequeux, Chirre, Porter and Lebreton have reported cases in which the sugar tolerance was lowered by oophorectomy. Vomiting of pregnancy occurs as the result of the extremely low sugar tolerance due to inactivity of the ovaries. Removal of the ovaries lowers the sugar tolerance and ovarian feeding raises it. Experiments on dogs, cats and guinea pigs by Rebaudi (110) and Stolper (132) showed that oophorectomy causes hypertrophy of the islands of Langerhans in the pancreas. Upon further

investigation these changes were observed upon the removal of the corpora lutea. Probably these organs serve as organs of internal secretion in the ovary and the pancreas attempts to replace their secretion. These observations are further supported by Novak (104) and Krusen (83). Stolper (132) concludes from his experiments that the ovary and pancreas have some relation to the carbohydrate metabolism since ovarian feeding improves the condition of pancreatized animal and removal of the ovaries makes it worse. Cristofolletti has shown that in castrated animals an adrenalin glycosuria occurs. As the ovary checks the adrenals Fuerth and Schwartz (cited by Stolper 132) conclude that there must be an antagonism between the adrenals and the pancreas.

**Thymus** Frank (39) and Culbertson (22) state that the thymus atrophies normally at the time of puberty. Its persistence is associated with marked genital aplasia and infantilism. On the other hand early oophorectomy causes enlargement of the thymus. Hyperfunction of the thymus is associated by some authors with status thymicolymphaticus and by Matti is believed to play a part in certain forms of hyperthyroidism. Early disappearance of the thymus lead to premature maturity. According to Frank (39) extracts are of questionable value.

**Pineal gland** Frank and Culbertson regard the pineal gland as non essential to life. Its hyperfunction in adults leads to obesity or cachexia in childhood to no definite results. Normally it atrophies at the time of puberty. Its hyperfunction causes bodily sexual and mental precocity.

**Spleen** The formation of numerous corpora lutea which occurs in many chlorotic women occurs also in splenectomized animals. As in such animals the splenic element is absent Aschner (3) concludes that in clinical cases the feeding of splenic tablets might be helpful.

From this brief summary of the action of the endocrine organs upon physiological processes and upon other organs it can be readily seen how easily the menstrual function may be altered either directly or indirectly by any endocrine dyscrasia and that such alteration may be attended by dysmenorrhœa.

#### Grass Pathology

**Functional pathology** Aside from endocrine pathology the chief subject for consideration with regard to functional pathology is membranous dysmenorrhœa. Endometritis glandularis hypertrophica and endometritis glandularis

hyperplastica are merely phases in the normal uterine mucosa during the premenstrual stage of the menstrual cycle.

**Anatomy** In the opinion of Eicke (28) Kaete (75) and Hirschmann and Adler (68 69 70) the membrane which sloughs off from the uterine mucosa during menstruation is a membrane of menstruation not of gestation. Examination shows that the mucosa is thrown off with some stroma and a few glands. The membrane is similar to the normal mucosa of the premenstrual period and may result from overgrowth of the endometrium near the os—cervical adenoids according to Royston (118). Bell (6) asserts that the pathology of the menstrual casts shows two types true blood casts and endometrial casts which may be thick or thin. All these casts show cells with a decidua like character. This membrane therefore is not associated with pregnancy although it is difficult to distinguish from that of pregnancy. It is a product of exudative endometritis at the time of the menses. On the one hand there may be a membrane covered with epithelium with scant glandular formation and stroma tissue filled with exudate and decidua cells while on the other hand there may be a membrane without epithelium with glandular necrosis internally and with scarcely recognizable stroma tissue filled with leucocytes. Between these two are numerous intermediate stages.

**Occurrence** As reported by Royston (118) membranous dysmenorrhœa occurs in three-fourths of Williams' cases and in two-thirds of Scanzoni's cases.

**Etiology** Eicke (8) von Franque (42) and Polano (107) have stated that membranous dysmenorrhœa is of inflammatory origin but Hirschmann and Adler (68 69 70) whose word appears to be reliable on this subject contend that the presence of inflammation is indicated by plasma cell and in this condition such cells are absent. The membrane is characteristic of the membrane present during the premenstrual period decidua like cells are present in the stroma tissue and the epithelial cells form a compact superficial layer and a spongy deeper layer.

**Menstruation** As the blood is not able to penetrate the mucosa it strips the epithelium from the uterus and if the resulting slough does not pass out of the cavity it causes extreme pain. Usually in such cases it is expelled in about three days the pain then ceasing. Large clots usually cause colicky pain. When bleeding starts it may collect in the deeper layer and separate the compact layer all around thus forming a mold of the uterine cavity. Hirschmann and Adler (68 69

o) conclude that the process is that of normal mensturation.

**Constitutional psychology.** The constitutional mensturation is associated with dysmenorrhoea are those which have been reported in the literature. Other diseases might be affected, but those mentioned may be accepted as the essential causative factors. They may occur alone or in combination with local or endocrine disturbances.

**General poor health** (Hollen 71) physical weakness (Kost 718, Mathes 91) and malnutrition (Hollen 71, Kost 718) are closely allied concomitant of dysmenorrhoea.

**Intergrowth** (Kerrauer 70, Mathes 91) is usually an allied phenomena of athena and malnutrition. Its bearing on dysmenorrhoea is not clear.

**Chronic** (Cottons 40, Novak 104, Krausenber 50, Asheim 1) is frequently associated with dysmenorrhoea. It occurred in 103 of 211 cases of primary and 151 cases of secondary menorrhoea (Lecher 135).

**Serfula** was present in thirteen of 34 cases of primary dysmenorrhoea in Toller's series (135). Asheim (1) also mentions it as a cause of dysmenorrhoea.

**Euthyria** is frequently associated with dysmenorrhoea. It seems to favor this condition. According to Krausenber (50) the development of the genitalia may be due to tuberculosis which later heal. Tuberculosis is sometimes manifested only by dysmenorrhoea and anemia. Correction of the general condition usually leads to normal menstruation (Lecher 135, Novak 104, Macht 88, Terence 32).

The frequent occurrence of anemia with dysmenorrhoea (Hollen 71, Novak 104, Kost 718) is emphasized. The condition may be primary or secondary to the chronic malaria (Hensen 52) or tubercula (Terence 32, Asheim 1).

In tabilitas of the nervous system may result in dysmenorrhoea (Hollen 71) and severe cramping in the lower abdominal may result from increased irritability of the autonomic nervous system (Black 7). Hyteric unaccompanied by disease sometimes causes dysmenorrhoea. Operation has been performed when the underlying condition was not suspected. It may present the usual hysterical manifestations: convulsion, hemianopsia, parasthesia, anaesthesia etc. Frequently it is associated with hypoplasia of the uterus. The pain usually occurs on the day preceding and the first day of menstruation (Kocher 92, Tolano 10, Novak 104). Primary neurasthenia is dependent upon environment, hereditary influence

of life etc. These must be corrected before there can be any hope of relief (Novak 104). The secondary type may be the result of many years of suffering which has worn down the normal nervous system or of a hypernervousness due to occupation (Novak 104, Kost 718). Mental depression is of considerable importance in the production of dysmenorrhoea (Kost 718). In six of the seven cases (135) the cause was psychic shock.

**Syphilis**, diabetes, nephritis, chronic cardiac disease, pyemic infection, such as tetanus and chorea, eclampsia must be borne in mind (Well 7140, Novak 104, Kost 718, Mathes 91). Trauma due to long travel, excessive running, or darning after menstruation accounted for twelve of Toller's cases (135).

**Local pelvic** (Kerrauer 70) it is important to use judgment in determining the bearing of pelvic disease on menstruation. Local disease may account for only a small part of dysmenorrhoea.

**General pelvic pathology.** A study of the relation of the menstrial flow to dysmenorrhoea indicates that menorrhagia occurs with the condition much more frequently than dysmenorrhoea. Early cases of tuberculosis are attended with menorrhagia and late cases with dysmenorrhoea. Endometritis (Kerrauer 70) which may be produced by infection (Toller 135) rarely occurs (Well 7140). Myomata (Kerrauer 70) may be the factor responsible for dysmenorrhoea. Half of the women with secondary dysmenorrhoea are subject to conception. Frequently the cause originates in the overleft quadrant through the pressure of the normal flexure on the left ovary (Kerrauer 70, Toller 135, Kost 718, Merritt 100, Finley 33, Rose 135).

**Neuralgia** is a term which should be used with caution. It has neuralgic similar to neuralgia of the face, but is characterized by hysteric pains. The cause is not definitely known (Novak 104).

An malposition, congenital and acquired. The abnormal is referred to in the literature affect only the uterus. It is likely no other cause of dysmenorrhoea. Cervical tension or cicatricial contraction (Well 7140, Kost 718, Tolano 10) congenital or acquired account for 25 per cent of cases of dysmenorrhoea (Theilhaber cited by Toller 135). Toller states that stenosis is the ultimate lesion in spite of the smallest opening is sufficient to permit the flow. The contraction may be in the internal or the external os or the neck of the uterus (Kall 5, 6).

**Abnormal** Kennedy (5) malposition of the uterus may predispose to dysmenorrhoea but must not be considered as a cause (Well 7140).

Young (142) and Kalledey (76) however look upon displacement of the uterus as a condition definitely productive of dysmenorrhœa. Prolapse (Kermauner 79 Tobler 135) retroflexion desensus (Tobler 135) and acute anteversion (Morton 100) are held equally liable. Angulation of the uterus (Behan 5) causes venous stasis with clots and a very profuse flow (Royston 118). Retrodisplacement of the uterus should account for 41 per cent of cases of dysmenorrhœa according to Holden (73) who found that 86 per cent of women with retrodisplacement have dysmenorrhœa. Judd found dysmenorrhœa in 59 per cent of 176 cases of retrodisplacement.

In maldevelopment of the uterus the opening is too small to accommodate congestion and flow (Behan 5 Holden 73). Usually in such cases the menarche is late and the pain begins with the onset of menstruation or one or two years later (Royston 118). The rudimentary uterus is associated only with amenorrhœa. In cases of the infantile type of uterus the flow is usually scanty and pain may or may not be present at the time of menstruation (Novak 104 Kennedy 78 Polano 107). In the subpubescent type of uterus which is only slightly underdeveloped there is pain at menstruation and the flow may be scanty, absent or excessive (Holden 73 Novak 100).

**Trauma.** On opening the lower abdomen in a case in which pain seemed to be associated with menstruation and a diagnosis of dysmenorrhœa was made Child (17) found that a contraceptive button had caused the expulsion of the menstrual blood through the tubes into the peritoneal cavity.

**Inflammations.** Pelvic inflammatory conditions are held responsible for 37 per cent of cases of dysmenorrhœa by Holden (73). Behan (5) Kennedy (78) Novak (104) and Weldon (140) agree with Holden that dysmenorrhœa may be caused by inflammations. Severe ascending gonorrhœa of the entire genital tract occurred in twelve of Tobler's cases (135).

Salpingitis with or without oophoritis may cause trouble (Tobler 135 Novak 104). According to Bandler (cited by Royston 118) from 8 to 10 per cent of all tubes removed for inflammation are tuberculous and involvement of the tubes is found in from 30 to 40 per cent of cases of tuberculous peritonitis.

As a result of infectious diseases of childhood appendicitis tuberculous chronic constipation and gonorrhœa sclerotic changes may occur in the ovary and give rise to ovarian dysmenorrhœa (Royston 118 Tobler 135).

Endometritis is an uncommon condition. Cul len (cited by Novak 104) found it forty eight times in 1 800 examinations of the endometrium. Hirschmann and Adler (68 69 70) claim that there is only one form of endometritis viz endometritis interstitialis; this occurs in the uterus is similar to inflammations in other organs involves the stroma and is characterized by plasma cells. In chronic cases it stimulates the formation of connective tissue. Of Tobler's 122 cases of dysmenorrhœa occurring after marriage or childbirth forty six showed endometritis with or without involvement of the myometrium.

Myometritis parametritis perimetritis and inflammations of the acro uterine ligaments are rather rare but may cause dysmenorrhœa (Royston 118).

**Neoplastic diseases.** As a rule the part played by new growths in dysmenorrhœa is that of obstruction (Novak 104 Royston 118 Dalché 24). According to Holden (73) myomata account for 11 per cent of the cases. Novak (104) states that dysmenorrhœa is a complaint in from 0 to 25 per cent of cases of myomatous uterus. The fibroids which cause the most trouble are the submucous or intramural growths.

Polypi (Behan 5 Royston 118 Weldon 140 Dalché 4) cystic conditions (Weldon 140) and malignancy of the cervix or body of the uterus are also of importance (Kennedy 78).

#### CLINICAL PICTURE

The clinical picture of dysmenorrhœa varies according to the severity and type of the underlying disease. A condition which leads to extremely severe cramps of the uterine muscle will give rise to spasmodic pains which may be mild or agonizing. The presence of extreme congestion of some or all of the pelvic organs may cause a sensation of a dull dragging bearing down nature frequently more marked on one side than on the other. The time relation of these pains to menstruation will be determined by the cause of the uterine contractions or the influence controlling the menstrual venous or arterial hyperæmia.

#### DIAGNOSIS AND PROGNOSIS

In the diagnosis dysmenorrhœa must be differentiated from ectopic pregnancy abortion appendicitis kidney stone hydronephrosis cystitis tuberculosis and other abdominal conditions capable of producing pain. Because of the periodical recurrence of dysmenorrhœa its recognition is usually not difficult but when it occurs for the first time after several periods of normal menstruation the diagnosis may require some

study. It must be remembered that dysmenorrhea may be secondary to the abdominal conditions with which it may be confused.

The chance of curing dysmenorrhea is variously estimated at 50 to 80 per cent by Novak (104) Eisenstein (20) Hirsch (66) Bruckner (10) and Littenberg (86). No one method of treatment will cure all cases since the underlying conditions vary. Therefore the prognosis depends solely upon the ability of the practitioner to recognize and correct the underlying causes.

#### TREATMENT

The best results have been obtained from hygienic measures carried out over long periods of time. Drugs and operative measures should be regarded only as supplemental.

**Hygienic measures.** Regulation of the bowels is generally accepted as one of the first steps toward normal functioning of the body. Novak (104) Morton (100) Insley (31) Foxe (115) Kermanner (9) and Hammond (58) urge the use of purgatives if necessary to facilitate the evacuation of waste products.

Exercises of various sorts are good, especially for those who are physically unentire and Mother (101) suggests lying on the back and raising the abdomen as high as possible and then lowering it alternately ten times night and morning; this procedure being continued for several months. He finds this method successful in almost every case. Kermanner (9) recommends Shute Bran's gymnastics or graded exercises. The purpose of this type of treatment is to build up the body as much as possible since it has been observed that the physically active girl or woman is less apt to suffer from dysmenorrhea than the girl or woman who is inactive.

The sexual life of the patient has much to do with her welfare. It is conceded that onanism (Kermanner 9 Toller 135) will aggravate pain during menstruation as will also too frequent intercourse during the first year of marriage or erotic presentations (Schultz 123). On the other hand proper marital relations and pregnancies are the surest remedies for dysmenorrhea (Novak 104 Kermanner 9).

During the attack physical quiet gives relief. In a few cases of pelvic congestion of non-inflammatory origin activity will hasten the circulation and thus diminish the pain. Between periods it is essential to improve the general health by rest (Novak 104 Gibbons 46 Auerbach 4 Hammond 58).

Heat applied during an attack is one of the oldest remedies (Novak 104 Kermanner 9

Herman 67). Between periods warm cloths stimulate normal metabolism.

Hydrotherapy during attacks and between periods is beneficial. Hot foot baths (Kermanner 9) hot sitz baths (Kermanner 9 Gibbons 46 Hammond 58) hot vaginal or rectal douches (Kermanner 9 Hammond 58) and hot mustard baths (Hammond 58) hasten circulatory interchange (Schultz 123 Ascheim 1). Hot drinks as advised by Auerbach (4) serve the same purpose.

A change of climate, sea air and mountain air are advised by Kermanner (9) and Schultz (123). Local and general heliotherapy is also a valuable aid in this condition (Bucary 12).

**Drugs.** Tonics are often prescribed. The best preparations are perhaps those containing iron or arsenic. These drugs are used especially during the intervals between periods.

**Antispasmodics** are given during the painful period of menstruation and sometimes before the pain begins in order to obtain their cumulative effect. The drugs most frequently referred to in the literature include papaverin (Novak 104) and (Novak 104 Kermanner 9 Hammond 58) *nitrosum prunifolium* (Kermanner 9 Gibbons 46 Novak 104) tincture of cannabis indica (Novak 100) cannabis tannate (Clare 19 Gibbs 46) fluid extract of *pu'atilis* tincture of gelsemium (Hammond 58 Kermanner 9 Novak 104) tincture of hydrastis (Hammond 58) hydrastinin hydrochloride (Ascheim 1 Kermanner 9 Rothrock 116) *gua-acum* (Gibbons 46 Herman cited by Hammond 58) *cerium ovale* (Kermanner 9) and *nitrolicerin* (Hammond 58). Benzyl benzoate is said to have special properties as an antispasmodic. Atropin in small quantities activates the uterus and in large quantities paralyzes it.

Hypnotics or sedatives are sometimes necessary. Those most frequently used are bromides (Kermanner 9 Novak 104) acetylcholine with caffeine (Novak 104) atropin (Kennedy 9 Kermanner 9) acetanilide caffeine (Novak 104) the salicylates (Gibbons 46) pyramidon (Novak 104) tincture of ginger spirits of chloroform syrup of acacia and aqua mentha piperita. In severe cases opiates such as paregon and codein (Kermanner 9) are used.

In addition to these drugs there is a small group with special actions which it might be well to include. According to Hammond (58) alcohol stimulates the flow. Lecithin given between periods is said to retard and diminish the flow without causing harm (Wiczinski 121). Ergot (Ascheim 1 Rothrock 116) and cotarnin

hydrochloride are uterine spasmodics and according to Rothrock (116) are sometimes of value to create regular rhythmic contractions.

**Endocrine substances.** Ovarian extract or lutein substance may be obtained in powder form in compressed tablets or in ampoules for intravenous injection. The ampoules are best. The dose should be given in series of twelve, twenty-four or thirty-six one ampoule being administered daily at first and then at gradually increasing intervals for two or three months. The results are long in accruing (Hurst 67, Holden 72, Burnam 14, Gibbon 46, Maier 90, Hill 65). Some authors (Krukenberg 81, Schumann 122) have been unable to obtain good results with ovarian extract and believe that its therapeutic value has been overestimated.

Thyroid extract may be given alone or in conjunction with ovarian extract depending upon the requirements of the case (Novak 104, Maier 90, Krusen 83, Kermauner 79).

Pituitary substance is specially recommended for dysmenorrhoea in which there is atrophy of the uterine mucosa a condition in which atropin is said to fail (Klein 80, Maier 90). Given by mouth this substance has no action. It must be injected subcutaneously or intravenously.

**Nasal treatment.** The nasal treatment of dysmenorrhoea as previously stated is dependent upon the location of the genital spots in the nasal mucosa through local anaesthetization by 10 per cent cocaine hydrochloride. Mayer (94) and Ries (113) report that cauterization of these spots by trichloroacetic acid has given a permanent cure. However there is sufficient controversy on this subject to raise considerable doubt in the minds of the unprejudiced as to the value of the treatment.

**Operative procedures.** Dilatation like other operative procedures on the cervix has for its purpose the enlargement of the lumen of the canal to allow a freer flow during the period. It may be effected rapidly or slowly. In addition the uterine canal may be incised from  $\frac{1}{2}$  to  $\frac{3}{4}$  inch and the cut sewed so as to allow granulation of the raw surface (Novak 104, Kennedy 78, Gibbons 46, Herman 60, Kermauner 9, Holden 73, Fenwick 31).

Curettage may be done at the time of the dilatation and in certain cases is an additional therapeutic feature (Holden 73, Dalche 23, Gibbons 46).

The intra uterine application of carbolic acid, iodine, sulphuric acid or nitric acid has been deemed advisable in some cases especially cases of membranous dysmenorrhoea (Novak 104).

In the absence of inflammation or adhesions the introduction of the stem pessary will cause rhythmic contractions of the uterus in addition to enlargement of the lumen of the canal thus developing the uterine muscle and relieving the distress (Novak 104, Kennedy 78, Gibbons 46, Rieck 112, Carstens 15).

Plastic surgery upon the cervix enlarges the outlet of the uterus through artificial placement of the parts. Chief among these procedures are the Dudley operation (Novak 104), the Pozzi operation (Pozzi 107) and the operations advanced by Bell and Frank (cited by Kennedy 76).

Suspension of the uterus (Novak 104) and puncture of cysts of the ovary (Gibbons 46) have not been very successful.

The intra uterine application of electricity—the constant current, the introduction of the aluminium sound cathode into the uterus and the application of the anode over the symphysis or acromion 20 to 30 milliamperes for three to five minutes and two to five sittings each week—is advocated by Sloane (127), Kermauner (79), Iomer (87), Hammond (58) and Sprague (130).

On the theory that ovarian hyperfunction may be the cause of the dysmenorrhoea, Herniman Johnson (61, 62) advocates X-ray treatment over the ovary to diminish its secretion. He gives seven applications each week until the skin of the abdomen is red. The disadvantages are the danger of causing sterility and injury to the skin. Oophorectomy, salpingectomy and hysterectomy are measures so drastic that they should not be undertaken until every other method has been tried and found futile. In the light of our present understanding of the subject such operations should not be considered in the treatment of dysmenorrhoea.

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the tarsus and attached muscle is then dissected free from the pretarsal fascia. The spatula is removed and the lid is placed in normal position. The three sutures are then passed through the lid at the lateral ends of the cut border from within out with care not to place them too high which would result in ectropion or too low which would result in entropion. The individual sutures are then tied over gauze cylinders at the ends. The sutures are fastened to the face with a 1/2 in. tie to keep the eye closed until the anesthetic gradually of the oculi wears off. The sutures are cut on the sixth day. The desired result is obtained in the soft eye. Complications do not arise.

In the cases of elderly patients in whom the skin elasticity is free care of the lid is a blessing. The lid is kept in the normal position. The lid is kept in the normal position. The lid is kept in the normal position.

No special is given with an amount of tissue to be excised in all patients. A lot of the muscle is left. The lid is kept in the normal position. The lid is kept in the normal position. The lid is kept in the normal position.

The twenty-one case operated upon by J. L. F. of the California Hospital for the Blind, Los Angeles, California, is a case of congenital cataracts and glaucoma combined with epiphora.

Zentgraf W. H. Management of the Eye and Ear. (L. J. M. J. 1911, 1, 101)

Zentgraf states that the most important step in the treatment of muscle imbalance is the proper estimation of the rectus of the refractive error and that a cycloplegic is essential for this purpose.

J. L. F. and Brown E. A. L. The Etiology of the Eye. (L. J. M. J. 1911, 1, 170)

In this article from J. L. F. and Brown report upon a second series of 100 cases of strabismus. These were studied in the same manner as the first series which was reported in 1910. As the cause of the factor in ocular infection was first (thirty even cases) combined infection second (twenty-four cases) and syphilis third (fifteen cases).

There were fewer cases in which syphilis was a factor than in the first series probably because of the use of serum in which the material was drawn. For the same reason the gonococcal infections were less numerous. Tonsillar infection was a more frequent cause in this series than in the first. Dental infections were common but the authors believe that

alveolar abscess is secondary to torular infection. This opinion is probably changed by statistics as it increases the number of cases due to torular involvement. There were fifteen cases of sinus infection but in only one was the condition the cause of the infection. In none of the cases was tuberculosis regarded as the cause although in eight there was evidence of this disease. There were three cases of gonorrhea prostatic. The work of Brown and McIlwain demonstrates a new source of infection, namely the mucous membrane of the nose throat and intestine. In about 55 percent of the cases there was more than one source of infection. The ages of the patients ranged from 35 to the youngest patient was 14 and the oldest 60.

The authors call attention to the fact that following the removal of infection there may be a temporary improvement and ultimate recovery with out recurrence of the infection. In most of the cases the infection is drawn into the infected eye was the cause of the infection. In other cases the removal of infection followed by a more striking improvement. Improvement with infection in twenty-four to forty-eight hours. This may be permanent or follow in a few days by a recurrence. The immediate improvement is apparently very similar to the starting but only temporary improvement occurs in gonorrhea and in infection of the eye. Intra-ocular injection of a 1 percent solution is probably non-specific and may be misleading with regard to the cause of the infection.

VIRIL W. S. R. M.D.

Still L. Amoebic Intest. Occurring in the Course of Non-Dysenteric Amoebiasis. (L. J. M. J. 1911, 1, 155)

Still reports a case of amoebic infection of the large intestine with no dysentery. The infection was in the cecum and the ileum. The infection was in the cecum and the ileum. The infection was in the cecum and the ileum.

In this case of peritonitis the infection was in the cecum and the ileum. The infection was in the cecum and the ileum. The infection was in the cecum and the ileum.

VIRIL W. S. R. M.D.

Tor K. F. Irregularity in the Glaucoma. A New Technique. (L. J. M. J. 1911, 1, 154)

The class of operations for glaucoma is in fact many. There are many theories of the pathogenesis but the one generally accepted is based on the assumption that normal intraocular pressure is maintained by drainage of the aqueous humor into the space of Fontana. In glaucoma the pressure of the aqueous humor is increased and the drainage is obstructed. The pressure of the aqueous humor is increased and the drainage is obstructed.

**cystoid scar** It is obtained according to Elchnig either by detaching the root of the iris from the periphery of the cornea or by incising it and failure results if this is not done or cannot be done or if Schlemm's canal is obstructed by plastic exudate.

**Iridectomy** is a safer operation than either the Lagrange or the Elliot operation and is therefore preferable. Failure is due to faulty technique.

The incision is usually made anterior to the corneal suture and never at it as should be done and the fault in the iridectomy lies partly in the manner of grasping the iris and partly in the way it is excised that is traction on the iris when it is grasped as is usually the case is not in the right direction to break adhesions and it is to tear the iris off along the anterior edge of the adhesion. These faults in technique may be remedied by

1 Making the incision with the Graefe knife instead of a keratome

2 Detaching the root of the iris with a spatula before doing the iridectomy

3 Grasping the iris with the iris forceps parallel with the vertical meridian of the cornea

The iridectomy is performed by the author as follows

The eyeball is grasped in the limbus on the horizontal meridian with a double fixation forceps. The incision is made above the puncture and counter puncture being in the sclera and the section is terminated behind the limbus with a conjunctival flap. If the iris prolapses it is replaced. The conjunctival flap is grasped and pulled up so that the wound gapes. The root of the iris is detached throughout the entire extent of the wound with a spatula. The iris forceps are introduced parallel with the wound and the iris is grasped pulled out with gentle traction and excised with two sweeps of the scissors. The pillars of the coloboma are replaced the conjunctival flap is smoothed out and a bandage is applied.

The advantages of his technique are the following

1 The Graefe knife makes a large peripheral incision with a conjunctival flap

2 Detachment of the adherent portion of the iris before iridectomy assures the opening of the iris angle and the reestablishment of a communication between the aqueous and the canal of Schlemm and may be carried far enough to open up the supra choroidal space in addition

Twenty seven cases were operated on by this method with satisfactory results

MANFORD R W T2 MD

**Bailey T L Subconjunctival Dislocation of the Crystalline Lens with Report of Three Cases** *Am J Ophth* 1923 35 44

Although traumatic subconjunctival dislocation of the lens is a very rare condition Bailey saw three cases in fourteen months. In the first he advised enucleation. In the two others he removed the lens from beneath the conjunctiva. In the second case the corrected vision was 20/100 and in the third 20/20

VIRGIL WESCOTT MD

**Mills L Phacocresis** *Am J Ophth* 1923 35 1

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Before beginning his discussion of the Barraquer intracapsular method of cataract extraction Mills gives a brief sketch of Barraquer's life. Ignacio Barraquer was the son of Jose A Barraquer one of Spain's foremost ophthalmologists. At the age of 13 years he began his surgical career under the guidance of his father in the eye clinic of the University of Barcelona. He has a very keen mind for mechanics and at present is a physicist of no mean rank, an electrician of high order and also an expert mechanic.

Phacocresis is the direct result of an idea conceived while watching a leech at work. Barraquer induced a leech to attach itself to a lens and effected a successful extraction by drawing out the leech. Phacocresis presents no insurmountable difficulties but Barraquer advises beginners to attempt the procedure at first only upon cases regarded as good operative risks. The fundamental point in the technique is the manipulation of the cressphake. This technique may be practiced on eyes of cadavers hardened in formol or on the lenses of cat made catarrhous by injections of strong formol behind them.

The instrument should be grasped by the middle finger on one side and the index finger and thumb on the other but with the fingers well flexed and out of the way while the thumb and index finger are placed as near to the root of the platinum portion as is possible. Vacuum contact is made by a gentle squeeze of the valve by the side of the thumb but without pressure on the lens. At its introduction the instrument is held nearly vertical the direction being given to keep the point down strongly at first. This brings the opening into accurate contact with the lens and if done correctly prevents any chance for aspiration of the vitreous. The maneuver is done wholly without pressure contact with the lens is maintained for a fraction of a second in order to allow the lens with its nucleus to mold into the cup and to permit the rupture of the zonule before rotation is begun.

Ideally the lens is rotated around its own center without changing the position of this center until the lower border of the lens has become the upper border and the anterior face has been turned posteriorly. The hand rests upon the brow and temple which serve as the fulcrum of the gentle rotation. The lower border of the lens is rotated gently forward into the pupil the back of the cup looking first forward then up and then gradually blocking the pupil as the lens rotation is complete. The motion of manipulation is almost wholly a wrist motion with a little sliding of all the fingers in the final moment of extraction.

The breaking strength of zonules differs materially requiring a weight of from 5 to 10 gm for rupture. Zonules of hypermetropic eyes are tougher than those of myopic eyes therefore myopic eyes must be handled more carefully.



but the reports have not established the value of the methods employed

Schoenberg in 1916 stained the nerves of animals by injections into the lateral ventricles and later reported five cases of optic atrophy treated with salvarsanized serum injected into the ventricles. Suker has used the same route injecting bichloride of mercury, good results in optic atrophy have been reported. Amon, the neurologist, the use of the intracranial route for salvarsan injections is not uncommon and massive doses up to 160 mgm have been given in this way with no unfavorable effects.

Because of the encouraging results obtained in the author's first case five other patients consented to the intracranial injections. Three or four injections of 1/50 gr. of bichloride of mercury were given at intervals of from ten days to three weeks. None of these cases has been under observation long enough to warrant the assumption that the process has been definitely stopped.

It is assumed that mercury injected into the basal cisterna will reach the meninges and pia septa of the nerve by the shortest possible route. Such an injection increases the permeability of the meninges to drugs in the blood stream in two ways by the simple drainage of the fluid and by the aseptic inflammation it sets up. The increased permeability may be assumed to allow the passage of much larger quantities of antibodies than normal.

The author draws the following conclusion:

1. Intracranial injections of bichloride of mercury have given better results than other methods previously tried. In several cases the condition was arrested, useful vision being preserved for periods of from one to two and a half years. A negative Wassermann test has often been obtained by such treatment.

2. Intracisternal injection is a relatively simple and safe procedure.

3. Improvement in vision especially following the first injection is presumptive evidence of the presence of an active infiltrative process.

4. The best results are to be expected in early cases with definite defects in part of the field but with relatively good central vision at least in one eye and with little evidence of other nervous involvement.

5. Good results are not to be expected in late cases or in advanced cases of paresis. Even if the atrophy is not advanced the more general the nervous involvement the less the chance of stopping the process in the nerve.

MANFORD R. WALT, M.D.

Keegan, J. J. The Technique and Reaction of Intracranial Mercuric Bichloride Injections. *B. J. Ophth.* 1933, 3, 5.

Cisternal injection of bichloride of mercury was used in cases of optic atrophy instead of ventricular injection because (1) it is more convenient incision and trephination being unnecessary and (2) the

drug enters a point in the cerebrospinal fluid circulation considerably nearer the optic tract.

The technique of entry is not difficult. An ordinary 18 gauge lumbar puncture needle is inserted into the neck directly over the prominent spine of the second cervical vertebra and directed upward at an angle of 45 degrees so that it enters the cisterna magna at a depth of from 4 to 6 cm. A guard at this depth is placed on the needle for safety. Twenty-five cubic centimeters of fluid are withdrawn by syphonage and to 15 c cm of this are added 3 to 5 drops of a 0.5 per cent bichloride of mercury solution. This is then re-injected by the gravity method.

There is usually almost an immediate reaction of severe occipital and frontal headache with nausea and vomiting a temporary drop in the blood pressure moderate shock and a slight elevation of the temperature. Within twenty-four hours the patient usually recovers sufficiently to go home but stiffness in the suboccipital region headache and nervousness may persist.

MANFORD R. WALT, M.D.

Garvill, M. Bitemporal Contraction of the Fields of Vision in Pregnancy. *A. J. Ophth.* 1923, 3, 885.

Bitemporal contraction of the fields has been observed in pregnant women by various ophthalmologists for the last twenty years but some of the earlier observers failed to recognize this condition as due to enlargement of the hypophysis. In 1922 Finlay of Havana drew the conclusion that the contraction was due to compression of the chiasm which often occurs as a result of normal hypertrophy of the hypophysis during pregnancy.

In 1908 Edheim and Stumme conclusively demonstrated the incidence of hypophyseal enlargement during pregnancy that this enlargement occurs chiefly in the vertical and lateral diameters due to enlargement of the anterior lobe and that the increase is never entirely lost. Thus they proved one of the two points necessary to establish the validity of Finlay's conclusions. The second point necessary to establish these conclusions is that bitemporal contraction of the visual fields is fairly constant. This was proved in a series of 100 cases at the New England Hospital for Women and Children. The women examined were intelligent pregnant women without complications. The fields were determined in daylight from a northern exposure with a perimenter with a 26-cm radius using a 5 mm opaque white test object. Twelve of the 100 patients are not considered in the discussion as the last examination was made more than three weeks before parturition. Of the remaining eighty-eight 56 per cent were normal 94.4 per cent showed more or less bitemporal contraction 25 per cent showed a contraction of 20 degrees or more 56.5 per cent showed a contraction of from 10 to 20 degrees and 12.5 per cent showed a contraction of less than 10 degrees. Five degrees was the minimum considered. Fifty-one per cent of the women were primiparae.

MANFORD R. WALT, M.D.



showed considerable variation. One was complicated by hæmorrhage and another by acute secondary infection due to repeated attempts to drain a possible orbital abscess. A third showed the follicular arrangement of the lymphocytes without the plasma cells. As proptosis was of the shortest duration in the three cases the findings were interpreted as earlier stages of the same pathological process.

MARY S. KNIGHT, M.D.

## EAR

Friedenwald H. and Breitein M. L. Unusual Forms of Extension in Purulent Otitis Media with Special Reference to Involvement of Cranial Nerves. *L. J. Surg.* 93: 451-8.

The authors report two cases in detail and review the literature.

In the first case reported paralysis occurred in the left palatine arch, the left side of the tongue, and the left vocal chord and arytenoid. It appeared probable that the eustachian tube, the peritubal tissue, and the semicircular tensor tympani served as the route for the extension of the pus from the middle ear to the retropharyngeal region. A retropharyngeal abscess at this level might press directly upon the glossopharyngeal vagus, cesary and hypoglossal nerves and such pressure would explain all of the lesions.

The probable cause of the abductor paralysis in the second case was toxic neuritis due to the retention of pus.

J. M. S. C. B. A. WELL, M.D.

Kerrison P. D. The Indications for Surgical Intervention in Acute Suppuration of the Middle Ear. *L. J. Surg.* 93: 451-8.

Surgical intervention as outlined by the author should include only myringotomy and mastoidectomy.

The indications for myringotomy are the elevation of the temperature and impairment of hearing associated with physical signs of inflammation and bulging of the drum membrane.

The indication for mastoidectomy is the following:

1. Postauricular or mastoid upper pole abscess.
2. Definite mastoid tenderness and no well beyond the limits of the antiauricular showing no tendency to decrease with incision of the drum membrane.
3. Marked variation in the amount of discharge extending over a considerable period of time, the periods of discharge alternating with periods of no discharge.
4. Prolonged high fever from the ear, associated with persistent marked limitation of hearing.
5. The development of a membrane which continues to exude pus after one or more myringotomies.
6. Audible change in the temperature during the course of any acute or subacute tympanomastoid infection.

7. The development at any time of homolateral abductor paralysis with evidence of tympanomastoid infection.

8. Symptoms of septic absorption.

In a case presenting unmistakable signs of mastoid infection a steadily increasing leucocyte count would be of great surgical significance. On the other hand, in the presence of certain clearly defined local indications the absence of marked blood changes would not disprove the necessity for surgical intervention.

JAMES C. BRASWELL, M.D.

McKenzie D. Discussion on Labyrinth Deafness. *Brit. M. J.* 923: 1867.

Of two cases cited in both of which, according to ear tests, the deafness was of nerve origin, one was entirely cured by cleaning out impacted cerumen and the other by catheterizing the eustachian tubes. Hence we are compelled to admit that nerve deafness may be induced by a simple obstruction in the conducting apparatus. We are not in a position to diagnose any disease of the labyrinth or nerve deafness in its earlier stages from the results of tuning fork tests, but the deafness in many cases of the Meniere group for example is often quite trifling and yet is often due undoubtedly to labyrinth disease. If then leaving it out of account for the moment the signs of nerve deafness are present and if on a general survey of a case—the history, the subjective sensations, the objective appearances of the tympanic membrane, the nose, nasopharynx and eustachian orifices and lastly the results of eustachian catheterization—no sign of middle ear or meatal disease is found, it is justifiable to conclude that in spite of its mildness and possibly brief duration the deafness is due to a disturbance in the nerve organization. One of the most important determinations is the type of deafness present. This then is the proper use of the hearing tests. They can be used only in combination with their correlatives.

Speaking of middle ear deafness McKenzie explains the presence of the signs of nerve deafness by an extension of the middle ear disease to the cochlea. On the basis of his cases he concludes that the most common single cause of nerve deafness is middle ear disease. Labyrinth disease in adult life seldom leads to complete abolition of function. Of the non-infectious causes affecting both ears progressive nerve deafness, syphilis and epileptic meningitis alone are liable to end in absolute deafness.

Acute disease of the labyrinth is accompanied by attacks of severe and sometimes prolonged vertigo whereas in chronic labyrinth disease while the vestibular reactions are often impaired, vertigo—at least severe vertigo—may be entirely absent. According to the author's figures, vertigo of the storm type was present in only about 11 per cent of his cases of pure nerve deafness.

The vertigo so common in labyrinth disease may be due to impaired cerumen or obstruction of the eustachian tube.

In cases of suppuration of the middle ear the labyrinth storm occurs under two conditions first when purulent labyrinthitis is set up by a sudden and massive invasion of the labyrinth spaces by pyogenic organisms and second when without actual or at least massive invasion toxins of these organisms induce what is called serous labyrinthitis. In the former event the sense organs of hearing and equilibration being destroyed the labyrinth storm does not recur. In the latter event the end organs though possibly permanently damaged are not destroyed and obviously the storm may occur.

From these facts it appears logical to assume that when the labyrinth storm occurs in the course of a chronic or subacute non purulent otitis media some thing happens which is comparable to the serous labyrinthitis of purulent otitis media. This may be the same kind of change that induces the nerve deafness element of a mixed catarrhal case.

The lesion which induces the labyrinth storm of herpetic deafness is known. In this case the virus attacks not the end organ but the vestibular ganglion and with it usually the ganglion of the cochlea. This variety also is non recurrent.

In syphilis of the labyrinth the labyrinth storm is a frequent and recurring symptom.

The author speaks of several different groups of labyrinth storms.

1 The mild type which gradually subsides leaving the patient more or less deaf. This is best fitted most by medical treatment.

2 More severe attacks occurring frequently induced by slight causes and having no tendency to spontaneous cure. These are probably due to a rise in the intra labyrinthine pressure.

Mention is made also of labyrinth deafness due to degeneration of Corti's organ from over stimulation and the deafness corresponding to the pitch of the causative noise. Senile deafness is often relieved by the removal of impacted cerumen. An insidious form of nerve deafness is known as progressive nerve deafness. This develops without labyrinth or canalicular irritation tinnitus or vertigo. The author believes it is a premature senile change.

With regard to syphilis of the labyrinth little is known. A Wassermann test should be made in all cases of deafness occurring before the age of 50 years especially if the condition is progressing rapidly. True nerve deafness necessitates a general examination.

In conclusion the author expresses the belief that treatment will always be unsatisfactory as nothing can restore a destroyed sensory end organ and nothing can rejuvenate an organ of Corti degenerated by age and disease. However although we cannot cure a destructive cochlear lesion we can at least prevent its occurrence in a large group of cases. There is reason to believe that most cases of labyrinth deafness and many advancing diseases of the middle ear can be if not cured at least checked. Fleeting attacks of middle ear catarrh in children and young adults occasional attacks of earache and

slight attacks of deafness following a cold should receive careful attention. A heavy responsibility rests upon those who venture to deny such a simple operation for example as the timely removal of adenoids in the young as there is good reason to believe that the trifling and evanescent attacks mentioned foreshadow serious middle ear deafness in early adult life and subsequent grave and irreparable involvement of the labyrinth.

GUY L. BOWDEN M.D.

## NOSE

Cohen L. Immediate and Late Treatment of Nasal Fractures. *Laryngoscope* 1933 43: 847.

Recognition of nasal fractures presents little difficulty as mere inspection often suffices.

Largely though precedent it is customary to wait for the swelling to subside before correcting nasal fractures. Cohen believes that better results might be obtained in a large number of cases if corrective measures were undertaken as soon as possible.

When both nasal bones are fractured early setting is accomplished by the simple method of lifting the depressed fragments setting the fractured bony septum in the midline and retaining this position by the introduction of gauze packing into the nose and the application of a splint externally.

When the bone of one side is completely fractured with the bony septum and the other bone is only slightly cracked setting is more difficult. In such cases the entire nose must be mobilized with the Adams forceps and possibly with the hammer before the bones are fixed in place.

In the cases of adults local anesthesia may be used. In those of children the author uses ether.

JAMES C. B. ASWELL M.D.

Gillies H.D. Deformities of the Syphilitic Nose. *B. M. J.* 1933 977.

Deformities of the syphilitic nose are divided into three groups.

1 Those in which a small amount of cartilaginous septum with its mucous membrane may be lost.

2 The common type characterized by loss of the bony cartilaginous bridge combined with great destruction of the mucous membrane.

3 The same destruction as that in the second group but with additional destruction of some or all of the external skin.

GROUP 1 The deformities of this group are uncommon. They are confined to the bridge of the nose and are due to the loss of the cartilaginous support. They are treated by the implantation of a piece of cartilage to give the nose the shape and support or finally given it by the septum.

GROUP 2 In this group it is important to supply a substitute for the lost mucous membrane in addition to a substitute for the missing bridge of the nose. The author uses Thiersch grafts and describes his method of introducing the skin graft. A cartilage implant is used as a substitute for the missing bridge.

**GROUP 3** When there is destruction of the external elements of the nose in addition to the destruction found in cases of Group 2 more or less extensive rhinoplasty is necessary.

Persons with syphilitic deformities of the nose should be kept under control by specific remedies but a positive Wassermann reaction is not a contra indication to operation. **WILLIAM B. STARK, M.D.**

**Yates A. L. The Simulation of Acute Pulmonary Tuberculosis by Painless Maxillary Sinusitis**  
*La c't 1923 ccv 968*

The author reports several cases in which pulmonary tuberculosis was simulated by maxillary sinusitis and describes at considerable length the physical findings in the nose and throat in cases of (1) painless maxillary sinusitis (2) pulmonary tuberculosis (3) pulmonary tuberculosis complicated by sinusitis.

In painless maxillary sinusitis the nose generally appears normal and the airway is good on both sides. On the affected side however there is generally slight enlargement of the middle turbinate. Posterior rhinoscopy reveals mucopus or an excess of mucus in the nasopharynx. The posterior end of the middle turbinate of the affected side is enlarged. Its outer or meatal surface may show irregular hypertrophy and mucopus is usually seen in the posterior end of the middle meatus. The soft palate is thick especially on its posterior surface where a rounded thickening occurs above the posterior surface of the uvula. The reflex sensibility of the soft palate is generally greatly increased. In some cases spontaneous vomiting occurs. This is overcome after a few days by painting the pharynx with silver nitrate. The posterior wall of the oropharynx is red and shows on its surface a network of blood vessels between which the mucous membrane is raised above the surface and of a velvety appearance. The posterior surface of the tongue shows marked hypertrophic masses particularly in and at the sides of the glotto epiglottidean pouch.

The laryngeal changes depend upon the position of the epiglottis and do not occur when the epiglottis is tilted backward so that it touches the posterior pharyngeal wall. When the epiglottis is seen in its normal situation the entire larynx is red, the posterior surface of the arytenoids is greatly hypertrophied and the mucous membrane of the space between them is generally hypertrophied to such an extent that the mucous membrane covering the arytenoids forms an oblong red bar from which the false cords take origin. In this hypertrophied mass the movements of individual arytenoids are difficult to distinguish and a forward prolongation of the hypertrophy is often situated centrally rendering a view of the posterior commissure difficult to obtain.

The mucous membrane covering the inner surface of the trachea is red, thick and actively secreting and the tracheal rings are rarely seen through the mucous membrane. The tonsils in these cases are usually hypertrophied but when the affected sinus is drained the enlargement often disappears. The

tonsil on the side of the affected sinus is practically always the larger.

Pulmonary tuberculosis is characterized by pallor and lack of reflex sensibility of the larynx, oropharynx and laryngopharynx and to a less extent of the nasopharynx. The mucous membrane throughout is thin and lacks reaction. The larynx is pale, the arytenoids are small, the inter arytenoid space is marked and the vocal cords appear thin. Posteriorly in the posterior commissure the mucous membrane is white and thickened. On phonation this thickening is squeezed into a shaped protuberance about 1 or 2 mm. thick. This shaped form is due apparently to fixation of the mucous membrane to a median raphe. When ulceration occurs it begins as a rule at the bottom of this central or fixed portion.

The same pallor and lack of reflex sensibility of the mucous membrane of the palate, pharynx and larynx are noted also in cases of pulmonary tuberculosis and sinusitis together. The nasopharynx contains pus or infected mucus not infrequently this is seen under the middle turbinate of the affected side but cannot be observed by anterior rhinoscopy. The nose appears normal except for a pallid and thin mucous membrane. The oropharynx shows a network of blood vessels between which the mucous membrane presents a pale velvety swelling. The larynx is pale, the mucous membrane covering the arytenoids shows pallid thickening and the inter arytenoid space is diminished or absent. The mucous membrane of the arytenoid region tends to form an oblong bar smaller than that seen in sinusitis without pulmonary tuberculosis and the forward prolongation is more marked, not infrequently overhanging the larynx. The mucous membrane of the trachea is thin and the rings are seen plainly. The tonsils are small and pale if enlargement has occurred it is generally noted in the lower pole.

The author's interesting explanation of the latter action of the two conditions is as follows:

Tubercle bacilli shut off from the general blood stream in milary tubercles produce toxins which passing into the general circulation cause anti-toxins to be formed and an antitoxic balance is produced. Few antibacterial substances are produced and the tubercle bacilli continue to live but not to multiply unless some change in their environment takes place. Micro-organisms in the sinuses continue to multiply and secrete toxins which being absorbed by the mucous membrane produce antitoxins and an antitoxic balance is produced. The bacteria in the sinuses do not reach the blood stream hence few if any antibacterial substances are produced. The presence of toxins within the nasal passages produces a reaction within the mucous membrane which may remove the bacteria but the existence of a chronic sinusitis is evidence that the bacteria have not been removed, but that they have adapted themselves to their altered environment in which process they generally become diminished.



in virulence as long as the environment is not again altered.

Any alteration of environment tends to alter this virulence and if there is for any reason an increased absorption of toxins also that again which the body is protected it meets not only the antitoxic action of that microorganism but also that of the tuberculous in the animal and the rest of the tuberculous process is neutral. It is the rest of the organism in its resistance to immunity the patient to a high degree against the natural infection and to get rid again of the development of microorganisms with the diseases by packing these where possible with some antiseptic for the gelatinous such as iodine emulsion. In general patients with tuberculous of the lungs should be treated up in a local anesthetic to the point of operation. It is a gift from the inhibition of the anesthetic to the active tuberculous. (Orr M. K. R. M.D.)

### MOUTH

Marshall J. A. Changes in Tooth Structure Resulting from Deficient Diet. *J. Am. M. A.* 1933 13: 63.

Marshall reports that changes in the teeth of the last few years tend to be principally in the direction of a reduction in the amount of vitamins and sunlight.

The reduction in the amount of vitamins is apparent in the decay of the teeth and in the teeth and in the enamel however. The author is of the opinion that certain of the vitamins are important in the tissue which build the normal enamel. The appearance of the teeth is not the only factor in the future of the teeth. (Orr M. K. R. M.D.)

Thompson J. F. Dental Impaction and Their Sequelae. *J. Am. M. A.* 1933 13: 4.

The author reports that in the majority of cases of impacted teeth the origin of the impaction is the condition of the teeth and the changes in the mouth. He reports on eight cases seen over a period of three years. In five of the eight the impact is caused by the teeth and the position of the teeth. He reports on eight cases seen over a period of three years. In five of the eight the impact is caused by the teeth and the position of the teeth. (Orr M. K. R. M.D.)

1. The presence of an impacted tooth does not necessarily give rise to a tooth which gives but conditions in each case must be carefully studied to make a proper diagnosis and prognosis.

2. The seriousness of the periodontal disease of impacted teeth is determined by the frequency of trauma to the injury caused by the tooth and the seriousness of the impact itself. (Orr M. K. R. M.D.)

### NECK

Higgle F. H. Some Observations on Laryngoscopy and Its Technique. *C. J. Am. M. A.* 1933 13: 35.

Higgle reports with history of laryngoscopy that he has been practicing laryngoscopy since 1921 when he took of New York Hospital and the operation for malignant disease up to the present day. In a series of 100 cases he has found that the incidence of cancer was 14.5 percent in 1921 and 1924 this increased to 20 percent in 1933 it has risen to 25 percent in 1934.

The author writes that laryngoscopy is a system of the larynx knowing why the probability of the disease is in the larynx and malignancy is a likely event.

When performing laryngoscopy the author makes a point of finding the vocalizing artery above the thyroid cartilage just before it pierces the thyroid gland. (Warrick B. S. M.D.)

Novak F. J. Cancer of the Larynx. *J. Am. M. A.* 1933 13: 33.

The treatment of cancer of the larynx is primarily surgical. Excision of a cancer of the larynx with no accurate method of determining its limits is actually useless.

The most effective treatment is a complete removal of the tumor and the removal of the lymphatic system. The removal of the lymphatic system is a necessary part of the treatment.

In the treatment of cancer of the larynx the author emphasizes the importance of the removal of the lymphatic system. The removal of the lymphatic system is a necessary part of the treatment.

The method of the author is the removal of the lymphatic system. The removal of the lymphatic system is a necessary part of the treatment. The removal of the lymphatic system is a necessary part of the treatment.

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Rbert C. W. Pitfall in the Management of Thyroid Disorders. *J. Am. M. A.* 1933 13: 444.

The prevalence of thyroid diseases is a public health question. The prevalence of thyroid diseases is a public health question. The prevalence of thyroid diseases is a public health question.

In the treatment of thyroid diseases the author emphasizes the importance of the removal of the lymphatic system. The removal of the lymphatic system is a necessary part of the treatment.

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lescent girls. In cases of adenoma and toxic cases it is distinctly contra indicated and in cases of colloid goiter in adult life it does not reduce the mass.

Enlargement of the thyroid gland is never harmless although it is considered physiological when it is associated with puberty and pregnancy. Accumulating evidence strongly indicates that these are the cases in which trouble is experienced later in life. The concern of the physician should be to aid by iodine therapy the establishment of complete resolution in the gland after the period of physiological stimulation has passed. In the operative treatment of permanently established hypertrophy whether manifest as in cases of adenoma or large colloid goiter or more or less concealed as in many of the toxic cases gland physiology must be taken into account. When the indication for surgical treatment is present the ideal operation is one which reduces the gland mass to that compatible with comfort and the best cosmetic result. When the indication is hyperplasia and hypersecretion it is the procedure which destroys a sufficient part of the gland tissue to cope adequately with the excessive supply of thyroxin.

The best results are obtained when all foci of infection are given proper care.

Since the introduction of local anaesthesia acute postoperative hyperthyroidism has become a rare complication. The many stage operation thorough study of each case and the avoidance of hasty operation with inadequate observation and preparation will soon lower this complication to the irreducible minimum.

In conclusion the author states that many cases are medical and some are benefited and a few cured by the X ray and radium.

ARTHUR L. SHREVE, M.D.

Hubbard R. S. and Webb C. W. Acetone in the Expired Air of Goiter Patients. A Few Determinations of the Changes in Blood Acetone During Thyroid Operations. Study II. The Thyroid Client. *Medical Bulletin* Springfield, N. York, 1923, 14: 1-6.

The authors estimate the acetone of the breath of goiter patients by a method described by one of them in an earlier paper. They found that in a large percentage of the cases there was an increased excretion of acetone in the expired air before operation but that in general patients who breathe had an acetone odor were the ones tested.

All of the cases studied showed increased acetone excretion after operation.

Two of four cases tested showed an increase in the acetone in the blood after operation and one case a high acetonaemia before operation.

EDWIN A. BAUMGAERTNER, M.D.

Hietler A. E. Pelvic Finding in 100 Cases of Toxic Goiter. *Journal of Surgery*, 1923, 31: 74.

The author noted the state of the pelvic organs in 100 cases of thyroid enlargement. He excluded

young girls, women at the menopause, cases of exophthalmic goiter and markedly toxic adenoma and all cases admitted for operation. The group included for the most part clinically mild cases in which the pulse varied between 90 and 130, the weight loss and thyroid enlargement were slight and nervousness was moderate.

In thirteen of the 100 cases the pelvic functions were accounted normal. In the remainder the following conditions were found given in the order of their frequency: dysmenorrhea, displacement, dysmenorrhea with displacement, displacement with cervical laceration and erosion, metrorrhagia, scanty flow, myomata, evidence of a pelvic operation and fixed uterus. Severe thyrotoxicosis, not commonly attended by pelvic disturbance. The metabolic rate was not definitely high in any of the cases. Women with pelvic disturbances and curable anatomical lesions should be operated upon. Those having small goiters should be given iodides and bromides; under this treatment the dysmenorrhea will be apt to disappear unless there is a complicating anatomical lesion.

FRANCIS T. H. DOUBLER, M.D.

Stellmann R. Roentgen Therapy in Exophthalmic Goiter. (Roentgen Therapy in Exophthalmic Goiter. *Roentgen Therapy in Exophthalmic Goiter*, 1923, 450.)

In 328 cases of exophthalmic goiter roentgen therapy was used with good results. Of these thirty-six (1 per cent) were operated upon unsuccessfully previous to irradiation. After the irradiation 50 per cent of the patients were without symptoms, 44.5 per cent were benefited and 5 per cent were not benefited.

The author gives one half to one third of a skin erythema dose anteriorly with a 3 mm. aluminum filter. In the cases of sensitive patients he distributes this dose over ten successive days.

The region of the thymus is always irradiated but the parotid region is protected as much as possible. The treatment is repeated after a lapse of three and a half to four weeks. Generally four or five irradiations are sufficient and more than ten are inadvisable.

Acute and subacute cases react the best particularly those of young persons in older persons the condition is more apt to be refractory. The patient need not be confined to the bed for the treatments. Intoxication from the irradiation never occurs. The nervous symptoms disappear first and the exophthalmos last.

TOBLER (2)

Bower J. O. and Clark J. H. A Preliminary Report of the Action of Buried Radium on Dissected Thyroids in Man. *Journal of Radiology*, 1923, 3: 875.

From experiments on dogs in which radium needles were buried in the thyroid gland the authors conclude that the normal thyroid is very resistant to radium rays. After determining that buried radium vials are about sixteen times as much irradiation as the

usual surface application they emptied in three cases larger doses than at or linearly given.

In one case of carcinoma resecting 5 by 4 by 3 cm. two 125 mgm. needles were buried in the mass and 25 mgm. were applied externally over the mass for forty-eight hours. Three weeks later the mass was reduced by one-half at this time two needles were again inserted for twenty-six hours. At the end of three months the mass presented a small amount of infiltration at the area of irradiation.

In a second case a mass in the larynx which was coughed up was found to be a squamous cell carcinoma. The metabolic rate was +44. After resection of the muscles eight 125 mgm. radium needles were inserted and left in the thyroid gland twenty hours. Six weeks later the mass was reduced by one-half and the metabolic rate was +18. Again radium was applied externally over the gland for 137.5 mgm. externally over the mass for twenty-four hours. The thyroid gland returned to normal and the patient noticed that the tonsils were reduced in size.

The third case a case of adenomatous thyroid was treated by embedding eight needles in the exposed gland for twenty-four hours. Four months later the patient had no evidence of recurrence.

The authors conclude that large doses of radium are borne well by the thyroid but the insertion of radium needles into the gland is superior to the

injection of boiling water, quinine urea or polar liquids and that radium is indicated in poor operative risks. They advise comparatively large doses of buried radium. A. J. W. S. LANKFORD, MD.

Tyler, A. F.: Carcinoma of Lingual Thyroid with Metastases in the Lungs. *J. Biol. Med.* 1933, 35.

Forty-four cases of lingual thyroids have been reported in the literature. These are due to incomplete descent of the thyroid in its embryological position or remnants of thyroid tissue left along the thyroglossal duct during the descent. They are about eight times more frequent in the female than the male.

The thyroid tissue usually lies in the posterior portion of the tongue at the junction of the buccal and pharyngeal mucous membranes.

The symptoms are local and due to pressure. The best treatment is surgical excision.

Tyler reports a case which is of especial interest because it is the first in which malignant changes were found.

Kjortgen grams showed firm, tasteless areas in both the tongue and thyroid. X-ray treatments were given, the latter over a period of two and one-half years.

An area resembling a carcinoma at the primary site and multiple metastases throughout the lymphatic and in the mediastinal glands.

C. ALLEN H. HARRIS, MD.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Holmes G M The Clinical Manifestations of Cerebral Tumors *Gl & M J* 1923 n 5 xviii 224

The subject as here presented should appeal principally to the general practitioner. The term tumor is used in its wide application to include new growths cysts chronic abscesses local collections of fluid etc. Attention is brought to bear upon the pathological processes involved in brain tumor symptoms.

The pathogenesis of increased intracranial pressure is explained in some cases simply by the bulk of the tumor alone. In other cases oedema and circulatory disturbances around the tumor are responsible. A third factor is the occurrence of either internal or external hydrocephalus which is a damming back of the cerebrospinal fluid either within the ventricles — i.e. compression of the foramen of Magendie etc. — or on the surface of the brain from obstruction in the subarachnoid or perivascular spaces. Still another possible factor is a blocking of the foramen magnum by the tumor or by backward displacement of the brain stem and cerebellum with consequent failure of the spinal fluid to escape from the skull.

Of the general symptoms headache is given first place in this consideration. This is characterized usually by a throbbing or bursting pain persisting for long periods and located in the forehead or behind the eyes except in cases of extra and intra cerebellar tumors when it is usually occipital. Superficial tumors may cause localized pain. The symptom next in importance to headache is vomiting which occurs in the early morning hours and is invariably accompanied by headache and may or may not be accompanied by nausea. The most valuable sign is optic neuritis or papilloedema but unfortunately this is absent especially in the early stages and in cases of tumor of the pons and basal ganglia and rarely in those of tumor of the cerebellum and midbrain. Occasionally however a case may run its entire course without exhibiting any of the symptoms mentioned either because the tumor grows very slowly and is so situated that it does not impede the circulation of blood lymph or cerebrospinal fluid or it is of the infiltrating type and destroys the brain tissue as it invades it causing little or no increase in bulk. Other much more rare and less dependable general symptoms are vertigo a slow pulse rate and such mental symptoms as dullness lethargy and character change.

The local symptoms are those which depend on the position of the tumor and the disturbances of function caused by compression or invasion of the

brain. Involvement of the precentral convolution may bring about localized paresis palsy or localized spasms of the opposite side of the body. Lesions of the parietal lobe cause subjective or objective sensory disturbances if the growth is in the occipital lobe or the vicinity of the optic tracts or chiasm it causes disturbances in the visual field. Involvement of the frontal lobes frequently causes characteristic degenerative personality changes. However since these symptoms are not peculiarly characteristic of neoplastic lesions the course of their development is of prime importance in the differential diagnosis.

The slowness of tumor growth and extension with involvement of the neighboring regions brings about the gradual development of local symptoms with out periods of diminished severity over months and years this fact serving to differentiate tumors from most vascular lesions uræmia and patches of rapidly developing inflammation. A slowly progressive course is to be observed also in certain degenerative diseases of the brain and in progressive thromboses but the more widely spread, usually bilateral distribution of the symptoms or signs of arteriosclerosis serve to eliminate the diagnosis of tumor. The presence of irritative phenomena such as jacksonian epileptiform seizures visual phenomena etc. though occurring in cases of traumatic or inflammatory cortical lesions suggests brain tumor if there are also signs of a slowly progressing cerebral lesion.

Unfortunately there are many exceptions to the rule of slow progression of symptoms in cases of tumor. Sudden acute or subacute exacerbations of local and general symptoms may be brought about by circulatory disturbances interference with the flow of cerebrospinal fluid inflammation and oedema about a tumor and hæmorrhage into or about the growth. Certain tumors are more apt to have an irregular and intermittent course on account of central softening and cavitation with consequent reduction in bulk or if the cavity assumes the character of a retention cyst an increase in bulk. An acute onset with symptoms of apoplexy has been noted after hæmorrhage into a tumor of the soft infiltrating type which had not increased intracranial pressure sufficiently nor caused sufficient damage of important structures to produce general or local symptoms.

Diseases to be differentiated from brain tumor are chronic degenerative affections of the brain certain renal diseases cerebral arteriosclerosis general paralysis of the insane primary hydrocephalus and traumatic and inflammatory lesions.

Of the accessory methods of diagnosis roentgenography can reveal only calcified or osseous tumors. Ventriculography cannot be used without discrimination. Spinal puncture is of little value except

to reveal high cerebrospinal fluid pressure and occasionally tumor cells and may cause rapid death if withdrawing the fluid results in a sudden alteration in the pressure on the bulb and cerebellum.

The next process after early diagnosis is localization. When the site of the lesion has been determined the case is ready for the surgeon. It must be borne in mind that although the decompression operation alone is a palliative measure it jeopardizes the chances of subsequent localization of the growth because it makes it difficult to decide whether further symptoms are due to decompression injury alteration in the tension relations within the skull or neoplasm.

KURT H. HORCK, M.D.

Winternitz A. New Methods in the Surgical Treatment of Tumors of the Brain and Spinal Cord (Neu re Erlah ungen i d r ch urg schen Behandlun g d r H r n u d Ru ckenmarkst mo n) Gjögd s i 923 4 56 a d 66

Eighty seven cases were operated upon

1 Cerebral growths were discovered in thirty-one cases. The growth was found at the site of localization twenty times (64 per cent). Cheyne Stokes breathing was present in 30 per cent choked disk in 60 per cent and Jacksonian epilepsy in 80 per cent. Of the twenty tumors found eighteen were in the motor area 75 per cent of the total number of cerebral lobe tumors operated upon. Sixty five per cent were easily operable. Glioblastoma or gliosarcoma were present in 65 per cent of the cases tubercles in 15 per cent cysts in 15 per cent and cysticerci in 5 per cent. The largest growths weighed 120, 140 and 160 gm. Six (30 per cent) of these twenty patients died four (66 per cent) were either poor operative risks or inoperable. Of the patients who were operable two (33 per cent) died. The causes of death were meningitis in 66 per cent of the cases shock in 50 per cent and softening prolapse and pneumonia in 33 per cent.

In eleven cases the growth was not found where expected because it lay slightly deeper (one case) because it was very deep (four cases) because the symptoms of tumor were due to an internal hydrocephalus (one case) or because there was no tumor at all (pseudo-tumor). In 81 per cent of the cases in which a growth was not found headache and choked disk were present and in 36 per cent there were central symptoms. Of the eleven patients seven died (64 per cent) and 36 per cent were benefited. In 57 per cent the cause of death was shock.

2 The posterior cranial fossa was the site of the growth in nineteen cases. Cushing's operation was done and the growth was found in twelve cases (63 per cent). The mortality was 83 per cent. The symptoms of headache and choked disk were present in 92 per cent and in the cases in which the tumor was not found in 100 per cent. Eighty three per cent were tumors of the auditory nerve and 16 per cent were intracerebellar growths.

The author always operates in two stages. After the first stage of the operation the mortality was 33

per cent. In the fatal cases in which a growth was found the cause of death was shock in 70 per cent of those in which no tumor was found the cause of death was inflammation of the meninges in 66 per cent. In two cases Winternitz attempted to complete the operation in one stage but both patients died of shock.

Of the patients in whom no tumor was found one was benefited in four of the others the growth was found at autopsy once in the pedunculus cerebri, once in the thalamus and twice in the opposite frontal lobe. In one case hydrocephalus was present. The tumor was found and successfully removed in two cases (16 per cent). One of these patients has remained well for eight years. Regarding the other nothing is known.

3 The hypophysis was the site of the tumor in two cases. Schlosser's operation was done both patients died. One tumor was an echinococcus cyst and one a malignant tumor of metastatic origin.

When the localization of the growth was not possible (five cases) the author performed the subtemporal trephination of Cushing with puncture. The results were poor.

4 Nineteen cases of tumor of the spinal cord were operated upon. No tumor was found in three. The clinical diagnosis therefore coincided in 78 per cent of the cases. Posterior nerve root pain was present in 90 per cent loss of sensation in 95 per cent and motor disturbance in 95 per cent. In 63 per cent of the cases the tumor was extramedullary and in 21 per cent intramedullary. Compression by the vertebrae was discovered in 15 per cent. Fifty per cent of the tumors were fibromata 20 per cent sarcomata 10 per cent of luetic origin and 10 per cent spondylitic exostoses. Of the cases in which the growth was not found two were sclerosis polynularis and two syphilis of the cauda equina. Of the fifteen patients with tumors four (26 per cent) died of meningitis and decubitus. Seventy three per cent of the tumors were in the dorsal region 21 per cent in the lumbosacral and 6 per cent in the cervical.

Local anesthesia was used almost exclusively. In cases of tumors of the posterior cranial fossa the first stage was performed under local anesthesia and the second under general. Tumors of the spinal cord were all operated upon under general anesthesia. Hemorrhage was carefully arrested by the method of Heidenhain bleeding from the dural sac was sealed with wax by Horsley's method. The two-stage operation was used only on growths in the posterior cranial fossa. All other operations were done in one stage. The author does not suture the dura or perform a plastic operation. He always carefully sutures the dural sac of the spinal cord.

VON LO MEYER (2)

Rainey W R. and Alford L B. Septic Meningitis J Am M A 923 1 56

The authors report two cases of septic meningitis following trauma to the skull which were treated by continuous spinal drainage. In one a lamorec

tomy was performed with the institution of drainage and recovery resulted. In the other a catheter was inserted into the spinal subarachnoid space through a trocar. This case was fatal.

It is felt that the introduction of specific or non specific antiserum into the subarachnoid space in post traumatic cases is unjustified and that the successful results of such treatment are due in large part to drainage obtained through the lumbar puncture. No evidence with regard to the treatment of such cases by repeated lumbar puncture is given.

LOYAL E. DAVIS M.D.

### SPINAL CORD AND ITS COVERINGS

McVeigh J. F. Experimental Cord Crushes with Especial Reference to the Mechanical Factors Involved and Subsequent Changes in the Areas of the Cord Affected. *A. C. S. G.* 1933. vii 573.

In complete spinal cord lesions there is a mixture of cord substance and blood at the site of the injury and the ends of the cord are separated for a short distance. If the pulp like mixture is forced into the segments above and below the lesion it causes an increase in the intraspinal pressure. Such increased pressure is relieved either by rupture of the pia mater or by the extension of the traumatized tissue up and down the cord. When the pia mater remains intact and the local pressure is relieved a bloody mass returns after an interval and fills the gap between the separated ends of the cord. If the local pressure persists as in uncorrected fracture dislocation of the vertebral column the return of this pulp is impossible.

Because of a weaker anatomical structure the ventral part of the dorsal white columns and that

part of the central gray matter which is dorsal to the central canal are the areas of the spinal cord most frequently involved in complete lesions. In addition the area of cord involved in the pulp invasion tends to be larger above the level of the injury in the lower cervical and upper dorsal regions and consequently produces more damage in such regions. Liquefaction of the pulp and the area of the cord involved in the debris in complete lesions begins after forty eight hours progresses rapidly and is complete at the end of two weeks. This accounts for the formation of cavities and symptoms above the level of the lesion and for the cavity formation alone below it in many old cases of fracture of the spinal column.

In partial lesions of the spinal cord the pressure is usually not sufficient to convert the cord at the site of the lesion into a pulpy mass and the traumatized tissue is not under sufficient pressure to be forced very far up or down the spinal cord. However the portion of the adjacent cord which is invaded is usually an area similar to that invaded in complete lesions. Edema and hemorrhage are the most important sequelæ to be dealt with. Small scattered hemorrhages which in themselves are not sufficiently extensive to cause serious injury are most often observed. Edema usually occurs within eight hours and attacks principally the dorsal white columns but the lateral and anterior columns may be affected as well. As a result of the edema the intraspinal pressure is increased but operative procedures designed to check the formation of edema have no effect and probably cause further destruction of the cord substance. Therefore the indication is to relieve the external pressure and leave the dura mater intact.

LOYAL E. DAVIS M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Miller E M and Lewis D The Significance of a Serohæmorrhagic or Hæmorrhagic Discharge from the Nipple *J Am Med Ass* 19 3 1901 1951

The authors discuss the significance of a serohæmorrhagic or hæmorrhagic discharge from the nipple in an article illustrated with photographs of patients and specimens and photomicrographs. The findings in their cases are summarized as follows

1 About the same percentage of benign and malignant tumors were associated with a discharge from the nipple

2 About half of the benign tumors causing a discharge were papillomatous occurring either as duct papillomata or as papillary ingrowths in chronic cystic mastitis

3 In seventeen of the forty cases the discharge was blood and in ten of these the tumor was malignant. In eleven cases the discharge was serohæmorrhagic and in eight of these the tumor was malignant

4 In twenty two cases the discharge was present before the tumor appeared. Eighty per cent of these were cases of malignant growths

5 In nineteen cases the tumor occupied the region immediately about the nipple and in about two-thirds of these it was malignant

It therefore appears that a serohæmorrhagic or hæmorrhagic discharge from the nipple may be associated with either a benign or a malignant lesion. The outstanding facts are that the character of the discharge varies considerably with the same type of lesion and the same type of discharge may be associated with lesions of considerably different character. The amount, color, odor and consistency of the discharge depend not only on the pathologic lesion from which it originates but also on the degree to which the discharge is altered before it reaches the surface of the nipple. An eroded vessel will always bleed whether it is at the tip of a benign papilloma or adjacent to or within a papillary carcinoma. If the tumor from which the hæmorrhage occurs is near the nipple the blood will appear on the surface but little changed. If the bleeding arises from a papilloma or carcinoma in the wall of a cyst or a dilated milk duct lying deep in the breast the blood becomes degenerated intimately mixed with the products of cellular disintegration and greatly changed in appearance.

The presence of a discharge from the nipple in a non-lactating breast is evidence of a pathological lesion but the diagnosis must be made from the usual signs and symptoms of benign and malignant lesions. The discharge cannot be regarded as of any great significance in the differential diagnosis.

When a serohæmorrhagic discharge occurs and no tumor can be palpated the lesion is in all probability a small benign intracanalicular papilloma deep in the substance of the breast. This the author believes should be removed. If the areola is partially resected after the portion of the breast giving rise to the discharge on pressure has been determined, a milk duct containing a blood clot will usually be found and the portion of the breast contiguous to it may be resected.

RALPH B. BETTMAN, M.D.

Walther H E Roentgen Ray Treatment of Cancer of the Breast (Die Röntgenbehandlung des Brustkrebes) *Schweiz. med. Wochenschr.* 1913 in 747

Sixty-one statistical tables of 9,000 cases of mammary carcinoma treated during the period from 1891 to 1921 show a cure in 31.9 per cent of those treated solely by operation. A case was regarded as cured if no recurrence had developed by the end of three years. Even today only one third of cases of cancer of the breast are cured. Since further progress along operative lines seems hardly probable the desired results can be expected only from earlier diagnosis and irradiation.

The reports on the results of irradiation following operation are contradictory. The effect of the roentgen rays depends upon their absorption by the cells. It is possible that their point of attack is the atom. The effect is directly proportional to the amount absorbed and the specific sensitivity of the irradiated tissue. The sensitivity of the cells is dependent upon metabolism and mitosis. Their colloidal condition is probably also of importance. The colloids of tumors have a very high dispersion rate. The roentgen rays have the ability to convert colloids of high dispersion into those of low dispersion but in carcinoma this effect is not sufficient to cause the death of the cells. The dose necessary to destroy cancer cells is usually about 110 per cent of the skin erythema dose but certain types of carcinoma require more.

Walther reports ninety cases. The incidence of the condition on the right and left sides was practically the same. Herdity played a rôle only exceptionally. Irradiation is a palliative measure of value in inoperable ulcerating carcinoma and in operable cases in which other conditions contraindicate operation or operation is refused. A permanent cure was never effected. Of fifty-two cases operated upon and irradiated afterward there were recurrences within a year in 21 per cent. In twenty-two cases the operation was performed more than three years ago. Of these patients seventeen (77 per cent) lived more than three years after the operation. This is a much better result than the 31.9 per cent

of permanent cures following purely operative treatment. Therefore the therapy of choice in cancer of the breast is operation with subsequent irradiation.

Simple irradiation is not recommended except in the unusual cases in which operation is contra indicated. The entire carcinoma mass should be saturated with the dose. This is often difficult because of the rapid decrease in the effectiveness of the rays with the increase in depth of the tissue. In the prophylactic irradiation following operation, Walther exposes four fields including the supraclavicular and axillary chains of lymph nodes and repeats this series twice in the course of the first year following the operation. In the interval he administers arsenic. In the treatment of recurrences or metastases this scheme must be altered to meet the requirements of the particular case.

Injuries are very rare. The author saw one burn due to faulty technique and one case in which increased rapidity of growth followed the irradiation. An increase in metastases following roentgen ray irradiation has not been proved. KOENIG (Z)

### TRACHEA LUNGS AND PLEURA

Spasokukotzki S J The Diagnosis and Treatment of Thoracic Tumors (Z. F. g. d. D. gnost. k. u. d. Th. p. d. Br. thoeh. l. g. h. w. i. t. e.) I. k. d. i. d. K. s. Ch. K. g. P. i. o. g. r. d. 923

Four roentgenograms are shown including two cases of echinococcus disease of the lungs, one case of endothelioma of the lung and one case of chondrosarcoma of the lung. The tumors illustrated were as large as a fist. The objective symptoms were insignificant. The diagnosis was difficult as the roentgenograms were not always decisive.

A broad incision was made with temporary resection of one to two ribs so that use could be made of the Litsch apparatus for pneumothorax. The postoperative course was exceedingly good. In no case were there any adhesions between the visceral and costal pleura.

In the discussion HAGENTORN of Petrograd stated that he uses the flap resecting two ribs in opening the thoracic cavity. The reflection of the flap to the sternum makes it possible to convert an open pneumothorax into a closed one.

FABRIKANT of Charkow has found that the danger of bilateral pneumothorax is by no means as great as is assumed. It is dangerous to displace the mediastinum and the large blood vessels.

OFFE of Petrograd reported that in an operation for sarcoma of the sternum both pleural cavities were opened relatively widely. The wound was closed and recovery was smooth. The smooth course of the operation and the disease was due to the use of Brauer's apparatus.

KREKOW of Petrograd said that unilateral pneumothorax may be dangerous, not only because of the compression of the lung but chiefly because of the displacement of the mediastinum and the

linking of the blood vessels. Bilateral pneumothorax is less dangerous. Such a displacement of the mediastinum may be avoided even in unilateral pneumothorax by placing the patient on the diseased side and elevating the lung into the wound.

GREGORY (Z)

### ESOPHAGUS AND MEDIASTINUM

Rovsing T. Antethoracal Esophagoplasty and a New Method (Ueb. anteth. skale. O. s. phagoplastik u. d. ueber eine neue Methode) IIo p. T. d. 1923 LXVI 1

After discussing the methods of antethoracal esophagoplasty used up to the present time, Rovsing describes his new method with the aid of a case history. The case was that of a 34-year-old woman who had been subjected to a gastrostomy because of an impermeable stricture of the esophagus due to lye. In the first part of the operation a long rubber tube the thickness of the thumb was introduced through the gastric fistula so that it extended upward as far as the neck. To the right and left two parallel incisions in the skin were carried downward from the neck and curved slightly at about the level of the gastric fistula so that they met at a point just a little above the level of the umbilicus. The skin flaps thus formed were then freed and united over the rubber tube with catgut. This having been done the mobilized edges of the incisions were sutured with aluminum bronze, the lower end being left open.

In the second stage of the operation performed six weeks later the cervical portion of the esophagus was dissected out and divided, the oral stump was united with the freshened tube of skin and the lower end was drawn through an opening made in the neck at the side of the sternocleidomastoid muscle. At the same time the lower end of the skin tube was permanently closed.

In the third stage of the operation the resulting defects were covered with skin flaps.

In a fourth stage three months later the wound was freshened, a defect at the gastric fistula was covered with a pedunculated flap and a Pezzer catheter was inserted into the stomach temporarily to favor healing.

At the end of four weeks the Pezzer catheter was removed and the lower end of the skin tube was closed permanently. Eight days later the patient swallowed fluid food and today fifteen months later is entirely cured and able to eat any kind of food.

DRAUDT (Z)

Case J. T. The Technique of Radical Therapy of Oesophageal Carcinoma. Am. J. R. 1919 3: 859

As the use of the oesophagoscope is so often impossible or distressing to the patient, the X-ray examination is relied upon to determine the extent and character of the lesion. Antispasmodics are used routinely to determine the amount of deformity due





# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Deutsch I Operations for Inguinal Hernia in Infancy (B t ege zur Hernia gu ls Opera tionen im Kindes lte) *Gyógész* 41 923 431

In the last ten years 780 herniæ in 639 children have been operated upon on the author's service. Three hundred and thirty seven (52.75 per cent) were on the right side and 161 (25.19 per cent) on the left. In 141 cases (22.06 per cent) the condition was bilateral.

Five hundred and seventy nine of the patients (90.61 per cent) were boys. One hundred and forty three of the patients (22.32 per cent) were between 1 and 2 years of age and eighty nine (13.92 per cent) between 2 and 3 years. Inguinal hernia was ten times as frequent in boys as in girls (639/50). This is in agreement with all foreign statistics. In both sexes the hernia was found more frequently on the right than the left side.

Twenty nine of the herniæ were incarcerated, twenty eight of these were in boys and twenty three were on the right side. All healed well after operation. Cryptorchidism was found in forty cases (6.9 per cent of the boys). In twenty-eight it was on the right side and in one case it was bilateral. In twenty cases (3.45 per cent of the boys) a hydrocele was found.

In twenty two cases (3.41 per cent) the appendix was discovered in the hernial sac, one of these cases was that of a girl and one was a case of incarcerated hernia. Appendectomy was done. In two cases the ovary and tube were found in the sac and in one case the appendix and bladder.

Tuberculosis of the hernial sac was found in two cases, ectopia testis in two cases of bilateral hernia, epispadias in one case and phimosis in two. In eight cases (those of seven boys and one girl) a right inguinal hernia was associated with an umbilical hernia.

The average length of time required for healing was eight days. Stitch abscesses occurred in three cases. One patient died eighteen hours after the operation from cardiac failure, a mortality of 0.15 per cent. The final result is known in 359 cases. Only two boys had recurrences. The author concludes that inguinal hernia should be operated upon as early as possible. VON LOEWMEYER (Z).

## GASTRO INTESTINAL TRACT

Moody R O Van Nuys R G and Chamberlain W E The Position of the Stomach in Life and Death *J Am Med A* 9 31 924

A careful roentgenological examination was made of 600 healthy young adults, an equal number of

men and women, most of them students at the University of California.

Preliminary determinations were made of those physical characteristics which might modify the position of the stomach, liver and colon. These determinations included weight, height, body diameters, intercostal angle, depth of the lumbar curve and strength of the abdominal muscles.

The most caudal portion of the greater and lesser curvatures and the pylorus was measured and tabulated with reference to the interiliac line. Some cases afforded the opportunity to observe the effect of increased development of the abdominal muscles and of loss or gain in weight.

It was found that the long stomach commonly reaching from 3 to 7 cm. caudad to the interiliac line and often into the true pelvis occurred in 80.6 per cent of this group. This low position of the stomach was unassociated with gastro intestinal disturbances and was regarded as normal. The strength of the abdominal muscles and loss or gain in weight had little or no influence on the position of the stomach.

The most caudal part of the liver was found to be caudad to the interiliac line in 53.2 per cent of the men and 41.2 per cent of the women.

The transverse colon was always caudad to the stomach and frequently in the true pelvis. This position was not associated with any disturbances.

The conclusion drawn is that the use of the terms gastropothesis, hepatoposis and coloposis is rarely justified. CHARLES H. HEACOCK, M.D.

Gorham F D The Factor of Dilution in Gastric Analysis *J Am Med A* 19 3 1911 738

The author describes a method of correcting the total acidity by taking into account the variable factor of dilution.

To 400 c.c. of water, which is a part of the test meal, is added exactly 1 c.c. of a solution of phenolsulphonaphthalein. The total acidity is expressed in terms of the number of cubic centimeters of tenth normal sodium hydroxide required to neutralize 100 c.c. of gastric content, a few drops of phenolphthalein being added if there is not enough phenolsulphonaphthalein present to act as an indicator. To determine the dye concentration, 2 c.c. of a filtrate of the sample are placed in a cup of the Hellige colorimeter and made alkaline by the addition of two or three drops of 40 per cent sodium hydroxide and the color is compared against a standard solution of phenolsulphonaphthalein of the original concentration taken with the test meal (400 c.c. of water containing 1 c.c. of phenolsulphonaphthalein solution and 3 drops of 40 per cent sodium hydroxide). The corrected total acidity is calculated by the use of the formula

$\frac{58 \text{ (acidity as ordinarily obtained)} \times 100}{100 - 44 \text{ (percentage of dilution)}} = 103$

From a study of normal persons and of patients with gastro intestinal symptoms the author concludes that the emptying rate of the stomach for fluids is variable in different persons without gastro intestinal symptoms. When 400 c cm of fluid are given as part of a test meal it may act as a diluent of the gastric juice for more than two hours. In fractional gastric analysis variations in dilution of the successive fifteen minute samples by the fluid of the test meal are of fundamental importance in determining the height of acidity and the character of the so called secretory curve. The variable dilution of the gastric juice by the fluid taken with the test meal is a factor of importance in determining the acidity as ordinarily obtained in the single aspiration or one hour method of gastric analysis.

V. ALTER H. NADLER, M.D.

#### Nordmann E. Gastric and Duodenal Ulcers (Ueber das Magengeschwür und Zwölffingergeschwür) Arch. f. Klin. Chir. 1933, xv, 92

The author reports his experience in 180 operations for gastric and duodenal ulcer. These lesions are most common in persons with a nervous disposition but in from 5 to 10 per cent of the cases no nervous basis is apparent. It must be assumed that several conditions are responsible for the development of gastric ulcer and that the lesion has a predilection for certain areas in the stomach due to local conditions.

Comparatively often duodenal ulcer is found associated with gall bladder disease and in many such cases it is the primary condition.

Cases are divided according to the location and the form of the ulcer. The author distinguishes ulcer of the pylorus, ulcer of the lesser curvature, duodenal ulcer, and ulcer of the fundus of the stomach or greater curvature. According to form ulcers are classified into (1) those in the first stage associated with characteristic subjective symptoms and hemorrhage but with negative clinical and X-ray findings, and (2) those in the late stages with adhesions to neighboring organs and perforation. The ulcers in the late stages which are found most often in private cases have the best surgical prognosis.

An important diagnostic sign is the presence of blood in the faeces (70 per cent of cases). In some cases a differential diagnosis between ulcer of the stomach and ulcer of the duodenum is impossible but in all cases of duodenal ulcer periodicity of the attacks is noted. An old ulcer may be present even when the X-ray picture is negative. Hunger pain occurs also in cases of gastric ulcer.

In young girls or women of a nervous type laparotomy should be performed only when the findings are positive as in such cases the symptoms are often functional. The choice of operation must depend upon the findings. Resection of the ulcer is desirable in cases of high ulcers; transverse resection is often

best. If no ulcer is found in the stomach or duodenum the author examines the gall bladder and appendix and removes them if necessary.

In cases of callous pyloric ulcer carcinoma is ruled out with certainty if there is no penetration of near by tissues if the lesion is movable and if no hemorrhage has occurred. In such cases the author performs a posterior gastro-enterostomy. In cases of duodenal ulcer the results of gastro-enterostomy are very uncertain. If the symptoms persist after this operation an old ulcer or a jejunal ulcer may be present and a second laparotomy must be done if internal treatment is not successful.

Boe (2)

#### Smithies F. Observations upon the Nature of Gastritis and Clinical Management of Gastric Ulcer with Suggestions for a Rational Regimen of Treatment. *Am. J. Med. Sci.* 1933, lvi, 781

Smithies summarizes what appeared clinically to be the etiological factors associated with 522 histologically proved chronic gastric ulcers. This summary is as follows:

| Condition   | Cases    |
|---|----------|
| Acute and chronic infections                          | 173 33.7 |
| Arteriosclerosis with vascular hypertension           | 50 10.7  |
| Arteriosclerosis without vascular hypertension        | 21 4.0   |
| Visceral hypertonia or splanchnic hyperfunction       | 68 13.0  |
| Chronic general anemia (so-called chlorotic)          | 61 11.5  |
| Syphilis  | 41 7.8   |
| Visceral hypotonia (vagus or splanchnic hypofunction) | 27 5.2   |
| Postoperative conditions                              | 27 5.2   |
| Industrial intoxication                               | 22 4.2   |
| Metabolic dysfunction (thyroid, suprarenal, etc.)     | 18 3.4   |
| Trauma  | 8 1.5    |

It is evident that through some systemic disturbance which is followed by local dysfunction a point of lowered resistance is established in the mucous membrane and the normal gastric physiology then causes an abnormal tissue change. Pepsin and hydrochloric acid attack the inert gastric cell; necrosis results and an ulcer is formed.

Fully 85 per cent of all gastric ulcers occur in the pylorus, the antrum, and along the distal fourths of the lesser curvature. The majority of peptic ulcers occur in that part of the gut which has the greatest circulatory, muscular, and neurological activity and the fewest in the parts which are fixed and serve as food receptacles or pepsin-secreting tubular glands.

According to Deaver fewer than one half of persons who are being treated non-surgically for gastric ulcer actually have a gastric ulcer.

True peptic ulcer is uncommon before the age of 30 years. All foci of infection must be cleared up

To negative Wassermann tests are essential to warrant any treatment which excludes antiluetic therapy. Except in cases of luetic ulcers causing marked gastric deformity little hope of permanent relief is offered by medical measures. In cases of callous ulcer intense pain frequent hæmorrhage perforation and the danger of malignant change demand operative treatment.

Smithies gives an outline of non surgical management. This includes

1 Physical and mental rest for from one to three weeks

2 Physiological rest of the affected part. Food by mouth irritating drugs gastric lala and frequent abdominal examinations should be avoided.

3 Local applications to the abdomen. Painful spasms may be prevented by the application of heat.

4 Abstinence from food by mouth for from three to seven days.

5 Rectal feeding. From 300 to 600 calories of a nutrient mixture should be given in salt solution every twenty four hours.

6 Mouth feeding. When mouth feeding is begun—between the third and fifth days—warm liquid nourishment should be given and in small quantities. Carbohydrates should be selected. Milk should not be given as a routine.

7 Limitation of the overproduction or over accumulation of free gastric acid. This is done by keeping the stomach free from food.

8 The administration of drugs. For painful gastrospasm Smithies uses atropine tincture of belladonna or bromides. For the relief of overacid gastric accumulations he gives 5 to 10 gr of calcined magnesium chloride every two or three hours. For the acute pain in perforation morphine is used.

9 Control of hæmorrhage. Constant bleeding demands operation. Intermittent bleeding may be controlled by rest in bed morphine horse serum and transfusion. Acute hæmorrhage with vomiting may be relieved by gastric lavage with water at 100 degrees F.

10 Care of the bowels. During the early period of treatment soapuds enemata should be given every other day. After the second week phosphate of soda Carlsbad salts and liquid paraffin in warm cream may be given.

11 Antiluetic treatment if lues is present.

12 The treatment of anaemia by the administration of iron and arsenic and in severe cases the transfusion of blood.

JOHN L. DIES, M.D.

Manuiloff W. P. Perforated Gastric Ulcers

According to Reports of the Obuchow Hospital  
(De perforatione Mige gastrice) ch den  
A g b n des Obusch w k nk nh u es) 1 r  
h n d l r Ch A g Pet og ad 923

It is important to diagnose and to operate immediately when a perforation has already occurred but it is equally important to recognize the signs that indicate an imminent perforation. An increase in the frequency and intensity of the attacks indicates

impending perforation. In 360 cases of gastric ulcer in which operation was done during the last ten years there were sixty cases (17 per cent) of perforating ulcer.

Forty nine cases were studied in detail. The perforating ulcers were situated as follows at the duodenum 8 per cent at the pylorus 28 per cent on the lesser curvature 34 per cent on the posterior wall 10 per cent and near the cardia 4 per cent. The localization was not mentioned in 10 per cent of the cases.

The number of hours that intervened between the time of perforation and the time of operation is of the utmost importance in the prognosis. From this standpoint the cases were divided into three groups: less than six hours thirteen cases one death; less than twelve hours fifteen cases eight deaths; and less than twenty four hours twenty one cases twenty one deaths. In the cases operated upon within the first six hours the mortality was 7.68 per cent in those operated upon within the first twelve hours it was 53.3 per cent while in those operated upon after twenty four hours it was 100 per cent.

As a rule the operation consisted in suture of the perforation usually combined with omentoplasty. If the patient's condition warranted it gastroenterotomy was added. Of the forty eight patients operated upon thirty one died a mortality of 65.2 per cent. The high mortality is explained by the fact that many of the patients came late for operation.

SCHLACK (Z)

Stechele H. Perforated Gastric and Duodenal Ulcers. Experience in Fifty Three Cases (Ueber die Perforatione Mige und Duodenale hui n h Erf hrn n n 53 Faell n) A ch f kl  
Ch 923 c 1 63

Kreuter's cases are carefully analyzed in this article. The author agrees with Icten that trauma and similar influences are of only slight importance in the etiology.

Perforation occurs very frequently in the fasting state and more frequently during the spring and autumn. Many perforations occur while the patient is in bed. Immoderate smoking plays a distinct rôle. The number of cases of perforation and of ulcer have increased since the middle of the world war.

Lately the frequency of perforation and of ulcer has been greater in males than in females. In males perforation of the stomach occurs more frequently in the third and fourth decades while in females it occurs up to the age of 50 years. The age of perforation does not correspond to the age of greatest frequency of chlorosis and ulcer.

The greatest chances for error in diagnosis are when the symptoms are disguised by the subsequent peritonitis and appendicitis probably because the outflowing contents of the stomach pour into the lesser cavity along the cæcum. In the beginning diagnosis is not difficult.

After the first twelve hours the rate of mortality increases rapidly. In the first twelve hours it is 6 per cent after that time, 86 per cent. The growing frequency of duodenal ulcer is striking. The treatment is suture of the ulcer with gastro-enterostomy. Primary suture of the abdominal wound following irrigation of the abdominal cavity is desirable.

RCCR (Z)

Clibson C I The Treatment of Hour Glass Stomach 4 S 2 923 121 587

The author calls attention to the value of the as yet little used operation of double gastro-enterostomy in the treatment of hour glass stomach. He cites two cases. One was that of a woman of 42 years who complained of epigastric pain and a loss of weight from 121 to 80 lbs. At operation a large hour glass stomach with marked pyloric obstruction was found. A double gastro-enterostomy was done with the result that the patient became entirely well and regained her normal weight. The second case was treated in the same manner with the same results. The type of operation performed was the typical no loop posterior anastomosis in the same loop of jejunum, the second opening being made from 3 to 6 in. from the first.

In the past numerous methods were used in the surgical treatment of hour glass stomach but none was entirely satisfactory. In a case with pyloric obstruction gastropasty or gastrogastrostomy is clearly contra-indicated. Sleeve resection is a much more formidable and dangerous operation than gastro-enterostomy. Most persons with hour glass stomach are thin or emaciated and poor surgical risks. After sleeve resection the hour glass deformity is apt to recur. There is also a definite risk of pneumonia following resection. In cases of cancer simulating the typical hour glass deformity sleeve resection is of very doubtful value. If the lower pouch is small if the hour glass constriction is very tight and if pyloric obstruction is absent simple gastro-enterostomy will suffice. If such a smaller pouch must be dealt with pylorotomy should be done as a second stage.

JOHN L. DIRS M.D.

Sawloff N M The Surgical Treatment of Gastric Ulcer (D churugi he Behndlung des Magengeschwurs) Verhandl. D. 11. Chir. Kongr. P. 1. grad 193

In the government hospital at Pensa in the last eight years 319 patients were operated upon for ulcer, 218 for gastric ulcer and 101 for duodenal ulcer. Two hundred and sixty six were men. The majority were peasants.

In most of the cases the condition was the result of the abnormal living conditions of the last years, coarse food and psychic traumata. There were sixty cases of healed or healing ulcers, thirty-one of which were in the pylorus, seventeen on the lesser curvature and twelve in the duodenum. One hundred and twenty nine operations were per-

formed for recent ulcers, forty three of these were in the pylorus, thirty four in the fundus and fifty two in the duodenum. One hundred and eleven operations were performed for callous ulcers of these thirty nine were in the pyloric portion, forty three in the fundus and twenty nine in the duodenum. In thirty six cases the condition was complicated by appendicitis. The operation of choice was posterior gastro-enterostomy.

On the basis of the acidity the cases could be classified into three groups. In 214 there was hyperacidity in sixty five normal acidity and in twenty-one hypo-acidity. After the gastro-enterostomy the acidity decreased. The best operative results were obtained in the cases of Group 1.

The conclusions as to the end results are based upon observations for a period ranging from three to five years. In cases of healed and healing ulcers of the pylorus a good immediate result was obtained in 90 per cent and improvement in 10 per cent. Eighty five per cent of these cases were re-examined. The end results were found excellent in 96 per cent and good in 4 per cent.

In cases of open pyloric ulcers a good immediate result was obtained in 65 per cent, improvement in 21 per cent and a poor result in 14 per cent. Sixty six per cent of these cases were re-examined. The end result was found excellent in 72 per cent, good in 22 per cent and poor in 6 per cent.

In cases of open ulcers at a distance from the pylorus the immediate result was excellent in 60 per cent, good in 20 per cent and poor in 20 per cent. Seventy-one per cent of these cases were re-examined. The end results were very good in 70 per cent, good in 22 per cent and poor in 8 per cent.

In cases of callous ulcer at the pylorus a good immediate result was obtained in 61 per cent, improvement in 22 per cent and a poor result in 17 per cent. Seventy per cent of these cases were re-examined. Of these 70 per cent showed a good result, 23 per cent improvement and 7 per cent a poor result.

In cases of callous ulcer far from the pylorus a good immediate result was obtained in 60 per cent, improvement in 23 per cent and a poor result in 17 per cent. Seventy eight per cent of these cases were re-examined. Of these 60 per cent showed a good result, 25 per cent improvement and 6 per cent a poor result.

In cases of simple duodenal ulcer a good immediate result was obtained in 69 per cent, improvement in 25 per cent and a poor result in 6 per cent. Eighty per cent of these cases were re-examined. A good end result was found in 74 per cent, improvement in 20 per cent and a poor result in 4 per cent.

In cases of callous duodenal ulcers a good immediate result was obtained in 60 per cent, improvement in 20 per cent and a poor immediate result in 20 per cent. Seventy eight per cent of these cases were re-examined. Of these 63 per cent showed good end results, 22 per cent improvement and 15 per cent a poor end result.

On the whole the results must be regarded as good. As exclusion of the pylorus seemed to be of no advantage it has recently been abandoned. A peptic ulcer of the jejunum developed in three cases. In no case was vicious circle established. The total mortality was 3.1 per cent. The causes of death were hemorrhage, pneumonia, bronchitis and cardiac failure. **SCHAAK (Z)**

**Halpern I O** End Results in Gastric Ulcer  
(D u e r l u t a t e b i U l c u s v e n t r i c u l i) Verhändl  
d R Chir Ko g Petrograd 1923

The large number of cases upon which this article is based were treated at the Government Hospital. Of 800 operations on the stomach 530 were done for benign diseases. Only patients not benefited by internal treatment were subjected to surgical treatment. Gastro-enterostomy was done in 466 cases and resection in twenty eight (these included four teen cases of peptic ulcer of the jejunum). The mortality of gastro-enterostomy was 3.9 per cent.

Two hundred and fifty four of the patients operated upon were found by re examination to be in good condition from one to thirteen years later. In the cases of pyloric ulcer an excellent result was obtained in 61.5 per cent, improvement in 15.4 per cent, and a poor result in 23.1 per cent. In the cases of extrapyloric ulcers an excellent result was obtained in 66.4 per cent, improvement in 8.2 per cent, and a poor result in 25.4 per cent. In the cases of duodenal ulcer an excellent result was obtained in 67.2 per cent, improvement in 10.9 per cent, and a poor result in 21.9 per cent.

The author considers the results of gastro enterostomy so good that he employs resection only when carcinoma is suspected and in cases not cured by gastro enterostomy. Even resection did not cure in some instances. Consequently gastric ulcer is some times incurable and improvement is to be sought not in the more dangerous resection but in gastro enterostomy with subsequent energetic internal treatment. In order to reduce the postoperative mortality resection must be done less frequently. Halpern warns against routine resection.

**SCHAAK (Z)**

**Baumann W** The Clinico-Diagnostic Significance of the Discovery of Occult Blood in the Faeces in Surgical Diseases of the Stomach Especially Carcinoma (Unter uchung n u b d n klin ch-di g ost h n We i d s N chwe ses knut Blut s m Stuhl be h urgschen M g ner kranku g n m t b o der Beru k cht gu g des M g n arci om) M d A l n 923 x

Not every test for occult blood is suitable in these cases as a so called physiological hemorrhage is possible. Such a hemorrhage may result in a faecal blood content of from 0.03 to 0.005 per cent. Therefore tests which are so delicate that they reveal such minute quantities are not suitable. These include the phenolphthalein and thymolphthalein tests and Adler's original test. On the other hand Weber's guaiacum and alouin tests are not sufficiently delicate.

For his clinical experiments Baumann used only tablets made according to Gregersen's prescription (diminishing the concentration of the benzin solution and substituting barium peroxide for hydrogen peroxide). As controls he used the guaiacum Schlesinger Holst, the Wagner benzin and the original Adler tests.

All of the patients were prepared alike. After strong purging for three days food free from haemoglobin and chlorophyll was given. The tests were made in 150 cases. Positive results were obtained with all four tests in 112 cases, negative results in eighty two cases and doubtful results in thirty cases.

Baumann does not consider a positive test essential for the clinical diagnosis because other diagnostic aids will usually indicate the pathological process correctly. A negative test however is of greater importance. Systematic investigations made in the Kiel clinic during the last fifteen years have shown that the gastric carcinoma nearly always bleeds consequently a negative result speaks against it while a constant positive result speaks more for carcinoma than ulcer. The other clinical findings must also be taken into consideration.

**HAGEMANN (Z)**

**Colp R** External Duodenal Fistulae A S g  
1923 Lxxv 725

External duodenal fistulae in which the duodenum is connected with the skin by a sinus tract may be divided into those having their origin in the peritoneal portion of the duodenum and those arising from retroperitoneal areas. The former which usually arise in the first portion of the duodenum are the more common.

External duodenal fistulae are associated with a higher mortality than any other variety of fistula. As the power of absorption in the stomach is negligible an opening in the duodenum such as a duodenal fistula causes the loss not only of the intestinal juices but also of practically all food and liquid ingested. Inanition and dehydration soon become very marked. Colp believes however that the loss of pancreatic ferments of bile and of the various secretory products leaving the duodenum through the open fistulous tract is also responsible for the rapid emaciation and dehydration.

Duodenal fistulae may be caused by a variety of conditions. They may result secondarily from traumatic rupture of the duodenum. Before ulcers were recognized with the accuracy of modern methods it was not uncommon for them to form fistulae by rupturing and becoming walled off as abscesses. Occasionally fistulae are the direct or indirect result of operative interference near the duodenum or upon neighboring organs which have been adherent to the duodenum. In such operations the duodenal wall may be traumatized or its blood supply restricted by ligation of vessels essential to its nutrition. Operations upon the gall bladder (especially those that are difficult) resection of the

stomach by the Billroth I or II method trans duodenotomy and nephrectomy may also be followed by fistula.

The diagnosis is based upon the odor and color of the dressings, the re appearance of methylene blue administered by mouth and the characteristic redness, swelling and excoriation of the surrounding skin. The condition is distinguished from gastric fistula by the degree of digestion of the food particle and from high jejunal fistula by having the patient swallow a kernel of corn attached to a string and then measuring the distance from the kernel in the fistula to the incisor teeth. The X ray is also of aid.

The time of appearance of the fistula is usually between the fourth and sixth days but sometimes as late as a month after operation. The prognosis leans upon the size of the opening and the patient's physical condition. In the majority of cases of fistula following drainage the appearance of duodenal contents usually began when the drain was removed.

If the discharge keeps within normal limits if the patient does not appear to lose strength very rapidly and if it is known that the opening in the duodenum is not large conservative treatment is best. The larger percentage of smaller fistulae especially those following gall bladder operations will heal if the sinus is dressed and treated with care. No fluid should be given by mouth the small amount of gastric juice present should be neutralized with alkalis and fluids should be given by enema hypodermoclysis or intravenously.

Enterostomy is the best treatment by jejunostomy. The results of suture of the duodenal opening and of suture of the duodenum with gastro-enterostomy with or without pyloric exclusion are much less satisfactory. All food should be given in liquid form and very slowly. The advisability of introducing into the jejunostomy the secretions from the fistulous opening is problematical. Retroperitoneal fistulae are best treated by simple suture of the perforation with omental reinforcement.

JOHN L. DICKS, M.D.

JONES A. W. Ileocaecal Incompetence A Clinical Analysis of 1000 Cases with Some Deductions Therefrom. (*Am J M S* 1933 ix 7)

In 1000 cases of ileocaecal incompetency the most frequent symptoms were gas constipation and so called toxic symptoms including dullness, languor, dull headache and depression. Various therapeutic tests were made and the results recorded. The following conclusions were reached:

1. Contraction of the ileocaecal valve may be demonstrable for a period of one hour. If the valve remains competent for that length of time its competency may be regarded as constant.

2. In a moderate percentage of healthy persons ileocaecal incompetency occurs without symptom. In the majority of such cases it is associated with a mobile caecum.

3. Ileocaecal incompetency is of frequent occurrence in persons who have abdominal distress. The relief of such symptoms may or may not be accompanied by relief of the regurgitation. The relief of such symptoms seems to be directly related to the re-establishment of the normal gradient of intestinal forces as suggested by Alvarez work.

4. In more than 80 per cent of the cases of ileocaecal incompetency the condition is associated with demonstrable caecum mobility.

5. There is a small number of cases of ileocaecal regurgitation with or without mobile caecum in which neither the stasis nor its symptoms can be overcome by dietetic measures alone. The end results following operative treatment justify the surgical measures employed.

6. The operative procedures alone do not relieve the distress. They merely place the case back into the large group of relievable cases which depend for cure upon dietetic and reconstructive methods of treatment.

MARCUS H. HUBNER, M.D.

GOPHER C. H. and BROOKS B. Intestinal Obstruction. *A. S. S.* 1933 lxxv 1755

Whipple has shown that in intoxication resulting from intestinal obstruction there is a marked rise in the nitrogen of the blood. Had and Orr, who note this fact and also a concurrent fall in the blood chlorides, claim that the rise in non-protein nitrogen can be prevented by the administration of sodium chloride in sufficient quantities to prevent the fall in the chlorides in the blood. From their experiments they have concluded that chlorides have a definite curative value in intestinal obstruction.

The authors conducted experiments to test the validity of this conclusion. In each of 6 dogs they isolated a loop of intestine and then re-established the continuity of the intestine. Both dogs died one at the end of fourteen days and the other at the end of thirteen days. At necropsy the isolated loop of intestine was found distended by a thin foul smelling liquid. The minimal dose of this liquid which was lethal for dogs when given intravenously was determined to be 32 c.c.m. When this dose was injected into the external jugular vein of an anaesthetized dog it was quickly fatal. There was no effect on the blood chlorides. In a second dog the minimal lethal dose given in the same manner was followed by the administration of 5 c.c.m. of a saturated aqueous solution of sodium chloride. This dog also died immediately. In a third dog the lethal dose was preceded by the intraperitoneal, subcutaneous and intravenous administration of normal saline solution but death again resulted.

These experiments show that large doses of sodium chloride are of no appreciable curative value in the intoxication following the intravenous injection of the toxic contents of an obstructed loop of intestine.

The cause of the symptoms and death following mechanical obstruction of the intestine is the forma-

tion in the obstructed loop of intestine of a powerful toxic substance and its absorption into the circulation. This substance is not present in the lumen of the normal bowel and is not absorbed by normal intestinal mucosa. The factor most often promoting its absorption is interference with the blood supply of the obstructed loop of gut by strangulation or distention. If strangulation or marked distention do not occur an animal may live for as long as twenty-one days with as much as 800 times the lethal dose of toxin in the obstructed loop.

It is impossible to get the toxic substance out of a loop of obstructed gut. A loop of intestine cannot be washed free from it. The removal of damaged mucosa is imperative if the damage is severe. Experiments show that after absorption the toxin reacts with some body tissue and does irreparable damage also that after a certain dose has been absorbed there is no possibility of relieving the intoxication. The only way in which it would be possible to neutralize the toxin absorbed into the circulation would be to introduce into the blood stream some substance that would react and destroy the toxin before it reached the tissues. Haden and Orr believed that sodium chloride would so react but the authors' experiments do not confirm this theory.

If treatment can be instituted before the lethal dose of toxin has been absorbed and it is possible to prevent the further absorption or formation of the toxin the patient's life may be saved but if the lethal dose has already been absorbed there is no known method of effecting a cure.

JOHN L. DRES MD

Jacobsen H. Volvulus of the Cæcum (Volvulus du cæcum). *Acta Chir Scand* 923 1: 31

Jacobsen first reviews the history of volvulus of the cæcum and mentions the two types of this condition viz. volvulus including the neighboring organs and volvulus of the cæcum alone. To the 110 cases already reported he adds twenty from his service in the Viborg hospital, Denmark. Eleven of the latter were cases of volvulus affecting the cæcum alone.

The condition occurs most frequently between the seventeenth and thirtieth years of age and from 70 to 80 per cent of the subjects are males.

Cæcum mobile may be due to excessive length of the mesentery, unusual situation of the cæcum or faulty insertion of the mesentery.

The volvulus may form (1) a pocket, the cæcum being distended like a pouch and twisted; (2) a loop with the neighboring portions of the large and small intestines; or (3) a knot between the cæcum and the ileum. Complete knots are rare but a number of cases of incomplete knots have been reported. The torsion occurs as often from the right to the left as from the left to the right.

The immediate cause of volvulus of the cæcum is overfilling and distention of the mobile cæcum, its displacement causing a fixed tract on point resulting

in chronic peritonitis with scar formation. Constant influx of gas and fluid makes the cæcum heavy and finally paralyzes and fixes it in an abnormal position. The end result is torsion.

In one half of the cases there is a history of abdominal trouble and in a third a history of previous similar attacks. In twelve of the author's cases the symptoms were very acute. Two patients had suffered from diarrhoea, one became ill after a very heavy meal, two after coughing, one while pregnant and one soon after confinement. One was insane and one had a hernia.

Ileus from strangulation with acute progress, constant pain, frequent vomiting, local meteorism without peristalsis and diffuse evaduation can be differentiated clinically from ileus due to stopping with slower progress, better health, paroxysmal pain and diffuse meteorism when at each crisis the loops of intestine can be seen under the abdominal wall. The typical volvulus of the cæcum is rather low down.

The first symptom is violent pain which comes on suddenly and often is diffuse. Vomiting occurs in all cases a short time after the pain. The attacks are frequent and the vomitus is green. In one of the author's cases the vomitus was faecal. As a rule the occlusion is total but in a few cases gas and faecal matter are passed. Local meteorism around the umbilicus or across the abdomen in a belt is characteristic. Sooner or later there is diffuse meteorism. Palpation is generally negative but sometimes a soft mass is felt in the pouch of Douglas. The quantity of water that can be injected by the rectum gives some indication as to whether the obstruction is located in the cæcum or lower down. As a rule the patient is greatly depressed but in fair condition. The temperature is normal or around 100 degrees F and the pulse is normal.

The diagnosis between volvulus of the cæcum, ileus and acute appendicitis is difficult. Ileus is more acute and occurs higher up. Volvulus of the sigmoid flexure is more frequent in the aged, more chronic and associated with tenesmus. Less water can be injected into the rectum than in volvulus of the cæcum.

After a trial of large enemata of water the treatment is surgical. A large incision is made in the median line and the volvulus carefully reduced by manipulation. Tears are apt to occur in spite of all care. Possibly the distended loop can be emptied first. After correction of the volvulus the bowel must be cleared. If gas does not pass during the operation the bowel should be flushed and a laxative given through a tube. Pituitrin and eserine should also be administered.

Other surgical measures are:

1. Puncture of the cæcum and evacuation of the gas by means of a hypodermic needle and of the fluid by means of a trocar.

2. Incision on evacuation and suture.

3. The formation of an artificial anus. No result is obtained if the volvulus is not first untwisted. An



incision below the vulvulus is of no value and an incision above it gives only temporary relief. An incision in the involved loop itself hinders untwisting. Enterostomy, caecostomy, appendicostomy or entero-anastomosis may be necessary but can be done only if the intestine is viable. If the intestine is not viable, resection is indicated.

Primary resection may be followed by circular joining of the ends, closure of the ends, and an anastomosis between the ileum and the transverse or pelvic colon, closure of the peripheral end, and implantation of the ileum into the colon (Olsson) or fixation of both ends in the abdominal incision.

Before the operation is finished, the prevention of recurrence must be considered, especially in cases of vulvulus of the sigmoid flexure. This is usually assured by secondary resection when the patient is better, the formation of an artificial anus, entero-anastomosis, typhloplexy, mesopexy, and division of adhesive bands at the base of the mesentery.

The results in Jacobsen's twenty cases agree in general with those reported by others. Jacobsen draws the following conclusions:

1. Laparotomy should be done as early as possible.
2. If the twisted loop is viable and easy to reduce and the patient's condition is not too poor, simple untwisting may be done. After the freeing of adhesions or puncture typhloplexy may be done if necessary. A good evacuation should be obtained.
3. If the gut is only slightly affected and difficult to empty by simple methods, appendicostomy is indicated.
4. If the gut is attacked by gangrene, resection is indicated. If necessary, this may be done in several stages.

A. C. MILLER, M.D.

Meyer R. E.: Carcinoma and Carcinoid of the Appendix (*Krebs und Carcinoid des Blind- u. vermiculati*). *Verhandl. d. R. Chir. A. z. Petrograd* 1923, 256.

The appendix is sometimes found to be the site of growths called carcinoids. These tumors have been designated also as lymphendotheliomata, neurocystomata, mucous nevi, and lymphangitis hyperplastica. They have nothing in common with carcinoma. In microscopic examinations of 1,324 removed appendices, three neoplasms of epithelial character were found—one carcinoma and two carcinoids.

Carcinoma of the appendix develops at an advanced age and is usually an adenocarcinoma or colloid cancer. Carcinoid occurs as a rule before the age of 30 years, usually does not metastasize, and is benign. Microscopic examination shows the presence of smooth muscle and lipoids and the absence of mitoses and penetration.

It may be assumed that the carcinoid develops from an embryonic rest at the time of the formation of the cell masses of the glands of Lieberkuehn. As in other neoplasms developing from such rests, malignant degeneration in carcinoids is possible but has not been proved.

RACHKIN of Petrograd, in the discussion of this paper, stated that in the Obuchow Hospital in the service of Grekov one carcinoid was found in 1902, removed appendices. Carcinoids, he believes, are benign and occur most frequently in women between the ages of 20 and 30 years.

SMOLYAKOFF of Nijni Novgorod reported the case of a patient who was still in good health five years after the removal of his appendix for carcinoma. This case, he believes, indicates the benign character of the growth.

GRINATZ of Petrograd stated that Federoff had found a case of simple carcinoma of the appendix. All layers, the mesentery and part of the omentum were infiltrated.

PARIN of Perm reported a case of adenocarcinoma of the appendix in which appendectomy was followed by recurrence after six months. GREGORY (2).

Carman R. D. and Finman S.: The Roentgenological Diagnosis of Diseases of the Colon. *Radiol.* 17, 1923, 129.

The most common organic diseases of the colon are neoplasms, diverticulitis, tuberculosis, and chronic ulcerative colitis. The roentgenological study of the colon in these conditions reveals obstruction of the bariumized medium, abnormal changes in its rate of passage, and transitory or constant deformities in the outline of the colon. Of the diseases mentioned, a differential diagnosis based on pathognomonic roentgenological evidence can usually be made only in diverticulitis. In cases of tuberculosis, neoplasm, and chronic ulcerative colitis, the roentgen ray will usually reveal evidence of a lesion, but this evidence alone is insufficient for a histopathological diagnosis.

To elicit the roentgenological signs of colonic disease, either the opaque meal or the opaque enema is applicable, and each has its advocates.

At the Mayo Clinic the barium enema has been found of greater value than the ingested meal in the diagnosis of diverticulitis, neoplasms, tuberculosis, and chronic ulcerative colitis. In 90 per cent of the cases examined with the enema, filling of the colon is continued until the barium mixture passes through the ileocecal valve. In cases in which spasticity is present, antispasmodics in physiological doses are used. Non-retention of the barium in the caecocolon shortly after its filling with the bariumized mixture has been observed in carcinoma and tuberculous and chronic ulcerative colitis.

Frequently lesions cannot be detected unless deep palpation and approximation of the bowel walls is resorted to during the fluoroscopic examination. Palpation may be done most satisfactorily and accurately with the bare hand or the hand encased in a soft leather glove. Motility has been found of very limited value in the diagnosis of colonic disease.

Very small lesions, the extent of the lesion, and lesions in the distal half of the colon can usually be demonstrated best with the barium enema. Roentgen evidence is pathognomonic in the majority of

cases of diverticulitis and in many cases of chronic ulcerative colitis. Tuberculosis and carcinoma of the colon do not present pathognomonic evidence but the roentgen ray findings usually justify a diagnosis of filling defect or lesion. Double lesions of like or unlike pathological character occur in the colon.

As a rule roentgenological diagnoses of diseases of the colon should be limited to actual shadow phenomena observed. The final diagnosis must be based on the correlation of all known data. Sometimes a specific diagnosis cannot be made with assurance until after a biological examination of tissue removed at operation.

RUSSELL D. CARMAN, M.D.

Helmholz, H. F. Chronic Ulcerative Colitis in Childhood. *Am J Dis Child* 1923, vi, 418.

The author's five cases are the first series in children to be reported.

So far as is known there is no single definite etiological factor. The condition may be the result of a variety of infections: pyogenic, dysenteric, amoebic or tuberculous, but whenever a specific cause can be demonstrated the condition is usually not considered chronic ulcerative colitis. In none of the five cases here reported was it possible to demonstrate the presence of any of the infections mentioned.

The ulceration generally begins in the lower portion of the bowel and in the course of the illness involves the entire colon. The ileum is rarely affected. Proctoscopic examination shows the ulcers most marked in the rectum and lower sigmoid. The colon is usually thickened, the surface appearing red and glazed and showing numerous small ulcers. The roentgenogram is characterized by marked narrowing and absence of haustra in the entire extent of the involved colon. The diagnosis of the condition is based on mucopurulent diarrhoea associated with the passage of considerable amounts of blood, usually in clots. This dysentery persists in spite of all medical treatment.

Under medical treatment the prognosis is unfavorable. In two of the cases reported a colostomy was performed in the third an appendicostomy and in the fourth an ileostomy by means of which the lower bowel could be constantly irrigated with saline solution. With a double opening of the ileostomy the entrance of faeces into the colon was prevented. Two of the patients showed definite improvement following the operation but two died. In one of the fatal cases death was due unquestionably to the complicating infection around the rectum and in the psoas muscle; in the other it was due to lack of resistance which prevented normal healing.

If the patient does not improve in the course of six weeks or two months under medical treatment it is advisable to operate. The operation of choice is the procedure devised by Brown, consisting of an ileostomy with the establishment of a complete faecal fistula through the lower loop of which the colon can be irrigated. An operative mortality of 50 per

cent is extremely high but it seems very certain that without operation all of the cases reported would have been fatal.

H. F. HELMHOLTZ, M.D.

Bolling, R. W. Partial Colectomy for Megacolon. *Ann Surg* 1923, lxxvii, 681.

Bolling reports the case of a 14 year-old boy who had a history of constipation since birth, abdominal distention and intermittent attacks of abdominal pain. The patient was sent to the hospital on account of severe abdominal pain which was not relieved by cathartics or enemata. On examination a large faecal impaction was discovered. This was removed and the patient was discharged at the end of eighteen days much relieved by medical treatment. An X-ray examination at this time showed a greatly dilated and redundant sigmoid colon and rectum.

The patient remained well for one month. At the end of that time abdominal pain again recurred but yielded to medical treatment given at home. Subsequently until one year ago similar attacks occurred at intervals. One year ago the patient was readmitted to the hospital where he was turned over to the surgical service of Bolling. The X-ray findings were the same as before except that the dilatation of the sigmoid colon was possibly slightly greater.

At operation 2 ft. of the large intestine including the sigmoid were resected and the descending colon was united to the rectosigmoid by lateral anastomosis. A small rubber dam drain was introduced on a stab wound. The sigmoid colon and rectum were found to be greatly dilated and the walls thickened. The remainder of the intestine appeared somewhat dilated but relatively normal.

The postoperative course was uneventful and the boy left the hospital nineteen days after operation free from symptoms. Subsequently he gained 22 lb. At times no bowel movement occurs for three or four days but a bismuth injection was completely eliminated in twenty minutes.

DAN MELLENDY, M.D.

Kelly, H. A. and Ward, G. E. A Clinical Study of Radium Therapy in Carcinoma of the Rectum. *Surg Gy & Obst* 1913, xxiv, 626.

The treatment of rectal cancer has been greatly facilitated by radium but is still difficult and often disappointing. We are able measurably to relieve the suffering of patients whose condition is hopeless to prolong the lives of others and to cure an appreciable percentage. In the treatment of rectal carcinoma at the Kelly Hospital, Baltimore, three methods of applying radium are used.

1. The implantation of bare emanation needle points into the disease focus.

2. The direct application of emanation to the disease area.

3. External or deep radiation with massive doses from a distance.

The technique of the implantation of needle points consists in inserting or threading tiny glass capillary capsules into the end of a long needle and

placing them in the growth by sight preferably near the periphery of the mass. The rule is that 1 mc will destroy 1 cm of tumor tissue.

Direct application to the surface of the tumor in the rectum is done in various ways. The authors have found best in most cases a cloth applicator with several pockets containing the tubes of emanation which are screened with 0.5 mm of lead wrapped outside to absorb the secondary rays. If the growth is annular a finger-like applicator is preferable. This is inserted through the rectum by means of the proctoscope or with the guiding finger the speculum being omitted. The dose is usually 1 or 2 gm hr.

For external application heavy lead applicators and 2 or 3 in. portals are used. In this way from 1 to 1½ gm hr can be delivered to the growth without causing erythema of the skin. If four portals of entry are used the distance is 3 in. and 10 gm hr are given over each making 40 gm hr in all.

With the combination of these three methods it is possible to give relief for a long period of time to cause a marked reduction in large tumors and to obtain a cure in an appreciable percentage of cases.

The cases reviewed are all of those entering the hospital with the diagnosis of primary rectal carcinoma in the ten year period from 1912 to 1922. The series includes 230 cases but as in thirty the tumors were insufficient only 200 cases are considered. Rectal irritation was noted in only thirteen cases. Bladder disturbance in two and prostration, scarring or stricture in ten. Eleven per cent were cured, 62 per cent were benefited and 27 per cent were not benefited. For purposes of analysis the cases are grouped as follows: (1) hopeless cases, (2) those not benefited by treatment, (3) those benefited and (4) those apparently cured.

Of the ninety hopeless cases 63 per cent were benefited and 36 per cent not benefited. The patients who were benefited lived from three months to two years. The cause of the lack of improvement in fifty-four cases is not known as such were given as much radiation as the others were given but benefited. In six of the unbenefited cases there was a definite increase in the growth. The benefited cases numbered 124 (62 per cent of all cases). The necessity for colostomy was obviated in eight cases. Exploration showed that nine cases were inoperable.

In three tables the authors show the relative values of the various methods of treatment used. Of the cases treated with radium alone in 63 per cent of which the condition was hopeless and in 61 per cent of which it was extensive a cure was obtained in 85 per cent and palliation in 65 per cent. Of the patients who were benefited but not cured 37 per cent lived more than eighteen months.

The best results with radium treatment alone (palliation in 70 per cent of the cases and apparent cure in 11 per cent) were obtained by combined treatment both external and internal. External treatment alone resulted in a cure in 11 per cent and internal treatment alone cured in 58 per cent. The number of cases treated with needles plus inter-

nal application or with needles alone is still too small to warrant conclusions as to the efficacy of these methods. Of five operable cases treated with radium alone two were cured two were benefited and one was not benefited.

Of the group of patients treated with radium plus operation 175 per cent were cured 505 per cent were benefited and 60 per cent of these lived eighteen months or longer. Of this group thirty-three had recurrences after a previous operation and of these 91 per cent are well 575 per cent were benefited and 334 per cent were not benefited. In the cases treated by radium and colostomy there was palliation in 687 per cent and cure in 63 per cent. In 25 per cent there was no improvement. It made little difference whether the colostomy was done prior to the radiation or after obstruction seemed evident.

There were twelve patients in the series with an operable tumor of these 50 per cent are well five (416 per cent) were benefited and one (84 per cent) was not benefited. Six patients were subjected to radium therapy and extirpation. Three of these are well and three were benefited.

The cured cases comprise 11 per cent of the total number. They were treated by three methods: (1) radium alone, (2) radium-colostomy and (3) radium operation. Radium alone cured 54 per cent radium colostomy 64 per cent and radium operation 57 per cent of the patients treated by these respective methods. The authors' conclusions are as follows:

1. The use of radium alone or with some operative procedure is by far the most effective treatment of carcinoma of the rectum in any stage. Cases not responding are regarded as not radiosensitive.

2. The combination of external and internal application gives the best palliation and external radiation plus radical operation gives the highest percentage of cures. Further trial will probably show that implantation of needles alone or combined with other procedures will give the best results of all.

The authors suggest the following rule for the treatment of carcinoma of the rectum:

If the case is operable radiate especially externally and heavily and operate. If it is inoperable radiate externally and internally and implant radium to render the condition operable. If this is successful operate. Postoperative recurrence should be treated with radium. If there is an obstruction colostomy is indicated but colostomy is a routine is unnecessary.

A. JAMES L. REIS, M.D.

#### LIVER GALL BLADDER PANCREAS AND SPLEEN

Diagnosis F. W. Chronic Cholecystitis With uterine Stone. *A. N. S. 5* 923 1 603

The author refers to the type of case coming to the hospital with a history of repeated attacks of pain in the right upper quadrant often radiating to the right shoulder. In such cases there is frequently also a history of vomiting and sour eructations.

However the attacks are not so severe as those of colic due to cystic obstruction. At operation the gall bladder wall is sometimes found markedly thickened and with numerous adhesions. In such cases Bancroft does not hesitate to perform cholecystectomy. Sometimes however the wall feels only slightly thicker than normal and there are no adhesions. The author discusses the advisability of opening the gall bladder for exploration in cases of this type.

Bancroft reviews thirty eight consecutive cases in which cholecystectomy or cholecystostomy was done. Twenty four (63.2 per cent) were those of women. The average age of the thirty six patients was 36 years and the average duration of symptoms two and one half years. The chief complaints were pain and soreness in the epigastrium or the right upper quadrant. The pain radiated to the back in twenty four cases (63.2 per cent). In nine it was dull and in twenty nine knife like. Thirteen patients complained of indigestion and gas after eating and nineteen complained of vomiting. Eleven women and five men had had previous operations for inflammatory conditions of the lower abdomen. Five women and seven men had disease of the appendix. There were in twenty eight (73.7 per cent) of the cases there were coexisting inflammatory conditions of the lower abdomen.

On physical examination most of the patients were found to be moderately adipose. Most of them did not appear very sick. Rigidity was moderate in four cases and marked in twenty five. Tenderness in the upper right quadrant on deep pressure at Murphy's point was noticed in thirty five cases and absent in three. Cholecystectomy was done in thirty-one cases, cholecystostomy in six and inversion of the distal portion of the gall bladder in one case of hour glass constriction. Of the thirty-one patients subjected to cholecystectomy only four had poor results and two of these were decided neurotics. Therefore good results were obtained in 88.5 per cent of the cases. In the cases of cholecystostomy good results were obtained in three (50 per cent).

The author therefore comes to the conclusion that a diagnosis of chronic cholecystitis is justified in cases with a long history of pain in the right upper quadrant usually radiating to the back and tenderness on pressure over the region of the gall bladder. This pain is usually not so severe as that due to obstruction of the cystic duct. The Lyon test proved a decided diagnostic aid in nine cases. In the treatment operation is justified and the probability of choice is cholecystectomy.

J. H. L. Dirs M.D.

Dimond J. S. An Experimental Study of the Meltzer-Lyon Test with Comment on the Physiology of the Gall Bladder and Sphincter. *Waterbury J. M. Soc.* 1913, 12:11-12:14.

The technique of the Lyon test is now too well known to require a detailed description. Suffice

it to state that the introduction of about 50 c cm of a saturated solution of magnesium sulphate into the duodenum by means of a duodenal tube is followed within a few minutes by a deeply pigmented bile which Lyon has called the B bile. Noting the similarity of the B bile to the contents of the gall bladder in color and viscosity Lyon assumed that the B bile is gall bladder bile.

By means of experiments on dogs the author attempted to answer the following questions:

1. Does the deeply pigmented viscid bile originate in the gall bladder?

2. Does the gall bladder contract and empty its contents?

3. Can the gall bladder contract at all?

4. What is the function of the gall bladder?

5. Is Oddi's muscle a sphincter in the true sense of the word?

6. What relation does it bear to the gall bladder?

7. Does magnesium sulphate or any other chemical substance produce a dilatation of the sphincter and simultaneously cause evacuation of the contents of the gall bladder?

A duodenal fistula was established in the dogs and at the same time a carmine emulsion was introduced into the gall bladder. When the animal recovered from the operation various chemicals were injected through the duodenal cannula. The conclusions drawn are as follows:

1. The function of the gall bladder may be regarded as merely that of an overflow receptacle in the nature of a diverticulum of the common duct which is not contractile. It never empties itself completely but occasionally small quantities of its contents may escape.

2. The sphincter of Vater bears no relation to the gall bladder either anatomically or physiologically. Stimulation of the sphincter has no effect upon the gall bladder contraction or the evacuation of the contents of the gall bladder. The observations of Dunn tend further to disprove the selective action of magnesium sulphate upon the sphincter papillae and through it any contrary innervation causing contraction and evacuation of the gall bladder.

JOHN L. DIRS M.D.

Dinner H. L. and T. S. Cullen. The End Results in Nearly 300 Cases in Which the Gall Bladder Was Drained—Not Removed. *Surg. Gynec. & Obst.* 1913, 22: 1-59.

In the foreword Cullen states that the sole purpose of the article is to aid in establishing a proper perspective in the matter of gall bladder surgery.

Darner's report covers a series of 296 surgically treated gall bladder cases in 290 of which a cholecystectomy was done.

With the exception of fourteen cases which could not be traced, the definite end result was established in every instance. In the great majority of the cases the condition was chronic cholecystitis and cholelithiasis with or without acute exacerbation at the time of operation. Gangrene was present in seven

teen cases an interestingly five the gall bladder disease was noted incidentally in the course of an operative procedure for another condition.

A fairly uniform technique was used in the entire series. A rubber drainage tube was sutured in the gall bladder with plain catgut sutures either mattress or whipple over through the lumen. A catgut pursestring was then passed through the outer wall of the gall bladder and two flat cigarette drains were placed below the gall bladder the gauze not quite reaching the end of the drain. One drain was removed on the second day and one on the third. The tube usually came away between the tenth and thirteenth days and the abdominal wound was healed at the end of the third or fourth week.

Twenty nine patients died immediately after the operation. Fourteen were not located, nineteen were not benefited, thirteen were operated upon a second time, twenty six were markedly benefited, and 202 were either well or free from gall bladder symptoms until death occurred from some other disease.

The immediate death rate of 10 per cent can be reduced to 4.14 per cent by excluding seventeen cases in which the pre-operative condition was very poor. This percentage of 4.14 per cent represents deaths due to unforeseen postoperative complications.

The symptom free period following operation in the 202 remaining cases ranged from one year to more than ten years.

Each case is reported briefly with mention of the outstanding symptoms, the pathology, the operative technique, and the immediate and end results. The only conclusion drawn from this analysis is that in the hands of the average surgeon and in the average case drainage of the gall bladder is safer and easier than its removal and that in the cases in which the gall bladder should be removed the patient's condition or the nature of the lesion may make removal impossible.

F. L. R. BILLINGSLEY, M.D.

Suermondt W. F. The Operative Results of Gall Bladder Surgery in the Leiden Clinic (Dutch). *Res. Lit. de Ch. bl. n. h. r. g. d. f. Klin. u. Leid.* D. 1. ch. 27. h. f. Ch. r. 10. 3. cl. 143.

After a brief review of the literature Suermondt gives the rules of gall bladder surgery used in the clinic at Leiden.

A cholecystectomy is performed under local anesthesia only in case of high temperature, rapid pulse, disturbed sensorium and icterus. In aute cholecystitis a radical cholecystectomy is more severe than an appendectomy; therefore the gall bladder is not removed until inflammation is entirely gone. The absolute indications for operation are perforation into the free abdominal cavity, acute cholecystitis with jaundice, no improvement after two or three days, and acute cholecystitis with threatened peritonitis. Jaundice without evidence of acute infection is an indication for operation only when it continues for eight or ten weeks.

In order to prevent chlamychohemorrhages calcium is given. Cold stone lixivie is operated upon. An internal melicaton is without result and colicky pains persist.

The operation consists in cholecystotomy and examination of the biliary passage. The transverse incision of Kocher is recommended. The cholecystitis is drained whenever there are stones in the biliary passage when pus or cloudy bile exudes from the biliary passage when the wall of the passage is thickened when the biliary passages are distended and when on the basis of the history there is a presumption of infection of the bile. Drainage according to the method of Kehr is not done but Korte's thin rubber tube with a lateral window is used.

No biliary fistulae were observed. Should they occur Zaaier recommends enterostomy and in jection of the outflowing bile into the intestine. In cases in which the bile duct is not drained the cystic duct is ligated with catgut and in order to prevent fistulae this catgut is withdrawn after a few days by means of a long silk thread which is tied to it. In many closures of the abdominal wall is not done tamponade is reduced as much as possible but drainage is established.

The material consisted of 200 cases of which seventy six were cases of stone free of inflammation (forty two without and thirty four with icterus), 110 were cases of stone with inflammation (157 six without and forty four with jaundice) and four teen cases of inflammation alone. Pancreatitis was observed five times in these patients, twice in combination with stone and three times with inflammation. Stones were found in the large biliary passages fifty-one times.

In 100 operations the total mortality was 6 per cent. In thirty six cholecystostomies the mortality reached 13 per cent. Cholecystostomy and subsequent cholecystectomy resulted in a mortality of 14 per cent. In contradistinction to these results, 140 cholecystectomies had a mortality of only 4 per cent.

Infection of the abdominal wall was observed seventeen times. Sixty patients were subsequently examined, none showed a recurrence. Several had mild digestive disturbances, three a protrusion of the lateral scar and one a hernia. In the rest the costal margin incisions were firmly healed.

NORDMANN (Z.)

## MISCELLANEOUS

Kappis M. and G. Jach F. The Importance of Paravertebral Injection of Novocaine in Differential Diagnosis (Differential diagnosis of the abdominal cavity). *Arch. f. Chir.* 1934. 84.

The author values highly the paravertebral injection of novocaine in diagnosis especially in uncertain cases.

The 0.5 per cent novocaine solution is not kept exactly at the midline as the solution distributes itself metellv.

The best orientation is obtained by using the painful processes as the site of injection. In stout persons the counting control is from the last rib upwards.

The biliary system and the pyloric and duodenal regions are supplied vicariously only from the right side. Purely gastric pains should disappear in an anesthesia of the sixth to the eighth dorsal nerves and purely biliary pains in anesthesia of the ninth and tenth or at most the eleventh dorsal nerves. If this does not occur the disease must be of a different nature or there must be present some other disease or complications which overshadow the original disease.

Renal diseases are painful after anesthetization of the twelfth dorsal and first lumbar nerve. In these conditions a therapeutic result is obtained in addition to the diagnostic result. Colics and pains disappear immediately and usually never return. In diseases of the appendix the results are uncertain.

BERNAR (L)

Cirgölöff S S The Innervation of Intra Abdominal Adhesions (zur Innervation der intra abdominalen Verwachsungen) *Archiv für Klinische Chirurgie* 1923

These studies were made on the adhesions occurring after appendicitis and gastric ulcer. The author comes to the following conclusions:

Intra abdominal adhesions contain blood vessels and nerves. The latter occasionally reach a marked degree of development and may consist of branches of five to six separate nerve cylinders. Their development is dependent upon the immediately adjacent parts of the peritoneum. The symptoms depend upon the character of the nerves innervating the adhesions.

CASE of Ictrogral in discussing this paper said that in intra abdominal adhesions produced by ulcer of the stomach or duodenum the Head zones are usually found. When such adhesions are found in carcinoma the Head zones are not present. It must therefore be assumed that in the adhesions resulting from cancer of the stomach and duodenum the nerve end undergoes such change that the development of Head zones is prevented. CROFORY (Z)

# GYNECOLOGY

## UTERUS

**Uter Unrecognized Carcinoma** (Carcinoma of the uterus)  
 1 (pung) 31 1 ch f G b i h u G k 9 5

Of 178 patients with carcinoma (140 of the cervix and 38 of the body of the uterus) only thirteen came for treatment within the first fourteen days after the appearance of the first symptoms. Accordingly 93 per cent of the cases were unrecognized for an average of five and a half months. Only thirteen others sought treatment within the first four weeks. In nearly one third of the cases the attending physician alone or with the patient was responsible for the delay.

The deterioration of carcinoma statistics complained of by some writers is due entirely to this delay and a more energetic campaign should be waged against it. Uter makes a routine re-examination of every patient because he has found carcinoma present even when a previous exploratory curettage revealed no reason for the suspicion of malignancy.

FLEISCH (G)

**Amurth K. The Substitution of Irradiation for Operation in the Treatment of Uterine Cancer**  
 (Ueber die Ersatz der Operation des Gebärmutterkrebses durch die Strahlentherapie)  
 Vn Bummelle 923

The author discusses the position of the leading German and foreign hospitals with regard to irradiation treatment of uterine cancer and calls attention to the excellent results obtained by Doederlein in more than 1,000 cases—results that even advocates of operation cannot deny. The average primary mortality in operatively treated cases is 20 per cent. Irradiation is associated with practically no mortality. According to Seuffert's research irradiation may prolong life by more than two years even when the condition is advanced. Moreover pregnancy is possible after this treatment whereas surgery causes sterility. Doederlein reported a case in which a normal child was born six years after a cure was effected by irradiation. Pregnancy is known to have occurred also in two other cases treated at the Doederlein and Bumm clinic. The argument that because of the quick improvement occurring during irradiation women are apt to discontinue the treatment too soon is well founded but much can be done to combat this tendency through education of the laity. The strongest argument against irradiation is that certain cancers are refractory to it and there is as yet no chemical or microscopic test by which the prognosis can be determined definitely. This is true also of operation as otherwise local recurrence would not develop.

In the chapter on technical improvement Neuwirth mentions the cup of electrolysis of Seitz and Wintz, the vaginal raying of Bumm, the Flatau radium carrier, the strengthening of the vagina by injections of blood arsenacetin etc. and the American method of radium treatment with emanation needles.

In the chapter on his own experiences the author cites four cases treated successfully in Doederlein's clinic or by Doederlein's method. In summing up he states that the splendid operative results obtained by Zweifel and Schauta (a relative cure in about 87 per cent of the cases) have been almost equaled by Doederlein who obtained a relative cure in 87 per cent and that the results of the Wertheim operation (a relative cure in 55 per cent of the cases) have been surpassed by Doederlein who obtained a cure in almost 80 per cent. Seitz who obtained a cure in 30 per cent of his cases and by Kehrer who obtained a cure in 45 per cent. While little further improvement in operative technique is possible the technique of irradiation is still to be fully developed. Another advantage of irradiation is that it is more economical than surgical treatment as it does not require the long hospitalization made necessary by operation.

WOLMEER (G)

**Kraus L. The Results of Irradiation Treatment of Cancer of the Uterus** (Krebs der Strahlentherapie des Gebärmutterkrebses)  
 Zntln f Gy a k 923 xlvii 573

The author reports on the results of irradiation in cases of cancer of the uterus, vagina and vulva at von Peham's clinic. During the period from 1919 to 1922 all inoperable cases were rayed according to the Seitz-Wintz method with local applications of radium. Of the patients who had been operated upon only those were rayed in whom histological examination showed that it was impossible to operate in sound tissue. All recurrences and very advanced cases were irradiated.

A cure was obtained in eleven (17 per cent) of sixty-four cases of inoperable cervical carcinoma, three (33 per cent) of nine cases of vaginal carcinoma and one (10 per cent) of five cases of vulvar carcinoma. In the cases of corpus carcinoma no cures resulted. The results of prophylactic postoperative irradiation and irradiation of recurrences is hard to estimate as the differentiation between chronic inflammatory infiltrations and true recurrence is very difficult. Even when the antitryptic reaction was negative this was impossible. The we'lliv acid gastric juice from cachectic patients contained the same antitryptic ferments as the blood serum. It is assumed that antitryptic ferments formed by autolytic ferments or toxins resulting from tissue

destruction are thrown off through the gastric mucosa and that the vomiting is similar to vomiting of pregnancy and parturition which is not due to a pre-uræmic condition.

In 50 per cent of the cases autopsy showed the direct cause of death to be uræmia from stenosis of the ureter and hydronephrosis. In cases of roentgen ray injury daily injections of from 20 to 40 c cm of  $\frac{1}{4}$  per cent novocaine solution into the surrounding tissues proved beneficial. In cases of necrosis of the rectum the pain was alleviated by daily enemata containing 1 or 2 tablespoonfuls of novocaine adrenalin.

The average duration of life in cases of entirely untreated carcinoma of the cervix was 239 days in inoperable and advanced cases 415 days and in cases operated upon and those in which a recurrence developed 750 days. WOLM RHAUSER (Z)

### ADNEXAL AND PERI UTERINE CONDITIONS

Odermatt W. Intra Abdominal Hemorrhage from Ruptured Corpus Luteum with the Symptoms of Acute Appendicitis (I traab dom n le Bl tungen us geplatztem Co p luteum i r de Symp ten e tr ak ten Appe di t ) Be t kl Cl 923 c 663

The numerous conditions with which appendicitis may be confused include hemorrhage from a corpus luteum. At the surgical clinic at Basel hemorrhages from a corpus luteum of menstruation were found eleven times in more than 900 operations on the cæcum. Two of these eleven cases are not considered in this discussion because the data were incomplete. In six cases the hemorrhage occurred from five to eight days before menstruation and in three between menstrual periods.

The bleeding is usually accompanied by a sudden cramp-like pain. Nausea, vomiting, diarrhoea or constipation may follow. The cause of the hemorrhage is to be sought in a moderate rise of abdominal pressure, since in none of the cases was there a history of severe trauma.

Upture of the corpus luteum may be caused by straining of the abdominal muscles in constipation, thus having occurred in several cases. The rise of temperature in corpus luteum hemorrhage is slight. The small difference between the axillary and rectal determinations (maximum difference 7.10 degree) is striking. The pulse is readily felt and the pulse rate 180 to 200 beats. There is no sign of uræmia or of toxic abdominalis. Muscular tension is slight but some tenderness is noted on pressure. On vaginal or rectal examination there is always distinct pain on the affected side. The leucocyte count is slightly elevated. It varies between 5000 and 10840.

Since the diagnosis can never be made with absolute certainty operation is the treatment of choice. The capsule of the corpus luteum may be sutured or a large excision may be done. Because of the possibility of disease of the other ovary the entire ovary should not be removed. If there is

opportunity for careful observation and pregnancy can be excluded with certainty expectant treatment is allowable.

Histological changes could not be demonstrated in the excised corpora lutea. In each case a corpus luteum of menstruation was found. In eight of the nine cases the next menstruation appeared either regularly or even later than normal in spite of the removal of the corpus luteum. In one case it appeared twelve days early. These observations speak against the Halban-Kocher theory that the corpus luteum inhibits menstruation. STUEBLER (G)

Heaney N S. A Simple Method of Testing the Patency of the Fallopian Tubes. *Am J Obst & Gy* 1933 vi 581

As soon as Rubin described his method of transtufation and he and others had proved it harmless the use of the ear syringe to test the patency of the tubes from below was adopted. The author has tried this procedure in every case of sterility examined since that time and has gained experience by using it also in every case in which the peritoneal cavity was to be opened either vaginally or abdominally. All tests are made with the patient in the lithotomy position.

In most cases air readily passes into the peritoneal cavity with a peculiar whistling or gurgling sound. Occasionally light pressure must be used. If the tubes are closed air will not pass after the syringe is about half empty. If the syringe empties the tubes are open.

When there is doubt as to regurgitation at the external os the vagina may be filled with water until the cervix is immersed or a lubricant may be used in the cervical canal so that if leakage occurs bubbles will be seen. EDWARD I CORNELL M D

### MISCELLANEOUS

La Roque G P. Pus in the Pelvis of Women. *N York M J & W d R* 1923 cxv 559

This article is based on 150 cases of pelvic suppuration with four deaths, a mortality of less than 1 per cent. Pus was confined to the uterus, tubes and ovaries in 330 cases. In 170 there were walled off pelvic abscesses.

The author warns against emergency operations in acute pelvic infections but advocates early surgical treatment to prevent further extension of the disease to adjacent structures and to obviate the necessity for a more mutilating and dangerous operation.

Systematic and thorough procedures are called for. In 9 per cent of the cases all disease should be treated at one operation.

In the cases reviewed drainage was instituted after the laparotomy in less than 10 per cent. Of the 10 cases of pelvic abscesses drainage was instituted in thirty-five; in this group there were three fatalities.

The mortality should not exceed 1 per cent and there should be no postoperative pelvic pain.



ruent vaginal discharge or excessive menstruation. Postoperative vaginal discharge is largely excluded by proper surgical treatment of the lacerated and infected cervix; the author recommends the use of the electric cautery knife.

Subtotal hysterectomy was done when the removal of both tubes was necessary.

Oophorectomy was performed in slightly more than 50 per cent of the total number of cases. Bilateral oophorectomy was never done in the cases of women under 45 years of age unless both ovaries were hopelessly involved. In about 90 per cent of the cases it was found possible to conserve at least a part of one ovary. C. F. LE JONES, M.D.

Norris, C. C. and Mikelberg, H. B. Gonococcal Infections in the Lower Genital Tract of Female Infant and Young Girl with a Report of 100 Cases. *The J. P. G.* 9:233, 1915.

Gonococcal vulvovaginitis in infants and young children is generally believed to differ in many respects from a similar type of infection in adults but on careful study the differences are found to be more apparent than real. In practically all chronic cases the cervix, urethra, and Bartholin's glands are infected just as in the adult. In the child the vaginal lining and the skin covering the labia and external genitalia are also attacked; in fact this is the primary focus of the infection. The routine use of the cystoscope has thrown a great deal of light on the clinical picture of the condition and has greatly aided in the treatment.

The source of the primary infection is often difficult to determine. Contamination is frequently traced to an infected mother. It is seen more often after breech than after cephalic presentations. A large

number of children acquire the disease in schools and institutions. Baths contaminated linen attendants' hands, clinical thermometers and toilet seats are factors responsible for the spread of the condition.

For successful result the treatment must be one that is easily administered, free from harmful effects and painless. The technique used by the authors is as follows:

The child is placed upon a table, the hips are elevated, and a rubber covered pillow is placed under the buttocks. It is essential that the pelvis be tilted in order that the solution injected into the vagina will gravitate backward and flood the entire vaginal cavity. The external genitalia and vulva are cleansed with a solution of one part Dakin's solution and ninety-nine parts olive oil. By means of a large medicine dropper about 3 cc of this solution are then introduced into the vagina and held in for about two minutes. This treatment is administered twice weekly by the physician and the mother or nurse is instructed to administer it night and morning. For intensive treatment which is usually required toward the end of the course, a large Beck's cystoscope with a cold lamp is used and applications are made to the cervix as in the adult.

The services of an efficient social service department are indispensable for the successful management of these cases. In a series of 100 of the authors cases the average duration of treatment was twelve weeks. The incidence of recurrence has been only 15 per cent. For the Dakin's solution which does not keep well, the authors have recently substituted a 2 per cent solution of mercurochrome. This however has the disadvantage that it stains.

HARRY W. FINK, M.D.

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

**Davis C H** Weight in Pregnancy Its Value as a Routine Test *Am J Obst & Gyn* 1923 31 575

Of 150 cases reviewed thirty nine (26 per cent) were those of multiparae and 111 (74 per cent) those of primiparae. The average gain during pregnancy was 21 lb (9.5 kg) and the average weight of the babies was 7 lb 4.5 oz (3.3 kg).

Seventy one of the women gained 20 lb or less the average was 15.5 lb (7.0 kg). These include fifteen multiparae (21 per cent) and fifty six primiparae (77 per cent). The average weight of their babies was 6 lb 15 oz (3.1 kg). These women may be classified as women of average nutrition. All of the babies were born alive but one died of erysipelas following circumcision.

Twenty-eight women gained between 20 and 25 lb the average was 22.3 lb (10.1 kg). Of these nine were multiparae (33 per cent) and nineteen primiparae (67 per cent). The average weight of their babies was 8 lb (3.6 kg). One baby was stillborn because of concealed prolapse of the cord. The largest baby in the series weighed 19 lb 10.5 oz.

EDWARD L C. ELL. M.D.

**Chatani** Severe Anæmia During Pregnancy Treatment by Repeated Blood Transfusions. Cure. *Gyn. from d. nem. gra. d. l. u. du. e. g. os. ex. tr. im. t. pr. tr. f. n. n. go. 2. p. l. e. s. gu. o. ) B. H. S. d. b. i. t. y. c. d. l. 9. 3. 1. 317*

The case reported was that of a para iv 38 years old who was in the sixth month of pregnancy. On the patient's admission to the hospital April 23 1921 a blood count showed 1006 250 red cells 5400 white cells 85.7 per cent polynuclears 11.1 per cent lymphocytes and 3.2 per cent medium mononuclears. The oxyhemoglobin content was 16 per cent. The patient had a wax like color in her face hands and ankles were edematous. Respiration was rapid and the pulse rate 110. No hemorrhage had occurred.

On April 26 a blood transfusion of 500 c.c. was given by the citrate method. The same amount was transfused May 6 and 13. On May 14 the patient was delivered of a premature infant which died very soon after birth. Two other transfusions of 450 c.c. blood were given on May 20 and 29. Cratal impregnment followed the red blood cells in creating better circulation. On August the blood count showed 1403 50 red cells 10800 white cells and a practically normal differential count and oxyhemoglobin content.

The author classifies this case of anemia with those described by Hayem. He believes that it was of

toxic origin because the patient while pregnant suffered with severe vomiting.

SALVATORE DI PALMA M.D.

**Kahn M** Chemical Changes in the Toxæmia of Pregnancy. *York M J & Med Rec* 1923 cx 540

It is known that the toxæmia of pregnancy is associated with characteristic lesions in the liver and striking changes in the metabolism. Therefore it seems logical to assume that it is due to failure of the detoxicating function of the liver. One of the normal functions of the liver is to produce urea from the ammonia brought to it. Normally only a small amount of free ammonia escapes in the urine. The ratio of this ammonia nitrogen to the total nitrogen in the urine is the ammonia coefficient.

When the liver is not functioning properly it permits a greater amount of ammonia to escape the coefficient being increased. Because of the secondary influence of the toxin on the kidneys a condition of nephritis is induced with the retention in the blood of various non protein nitrogenous compounds such as urea creatinin and uric acid. These substances are not the toxic factors but indicate the presence of others which have a toxic effect. The nausea vomiting and retention of acid substances cause a decrease in the alkali reserve or acidosis this being a result of the toxæmia rather than its cause.

HARRY W. FINE M.D.

**Hertzfeld B** The Symptoms of Rupture of the Tube in Extra Uterine Pregnancy. *Int Symp. mat. log. d. Tubenruptur b. i. Extr. ut. ring. a. d. (a. t.) Z. t. bl. f. G. y. k. 923. l. 517*

The shoulder pain associated with rupture of the tube described by Oehlecker and Dewes occurred in three of the author's cases. The pain in the right hypochondrium and shoulder was so striking that in the differential diagnosis quite different conditions would have been considered if other characteristic symptoms had not plainly indicated the occurrence of tubal rupture.

The author attributes this phrenic symptom to irritation of the sensitive fibers of the phrenic nerve by the blood escaping into the abdominal cavity. In his three cases the right tube was ruptured.

Another sign observed by Hertzfeld he calls the bladder sign. The woman has a desire to empty the bladder and then suddenly collapses. This he explains by the assumption that the gravid tube about to rupture irritates the peritoneum and bladder and its rupture is hastened by the increase in the intra abdominal pressure occurring during urination.

In one of the author's cases an attack of violent pain with collapse was followed two hours later by amaurosis and anuria. Ophthalmoscopic examination was negative. Renal function was restored six hours after operation but the urine contained traces of albumin. The amaurosis disappeared after four days. On the sixth day there was profuse diarrhæa with impairment of sensation a temperature of  $37.4^{\circ}\text{C}$  and a pulse of 110. Death occurred on the ninth day from cardiac weakness.

Hertz (7)

Mundell J J : A Case of Pregnancy in a Double Uterus (Uterus Didelphys). *Am J Obst & Gy* 1923 1 60

The case reported was that of a primigravida 26 years of age. The vulva appeared to be normal but when they were separated a vertical septum was demonstrated which divided the vagina into two equal cavities extending up to the vault of the vagina and was attached throughout its course to both the anterior and the posterior vaginal wall. There was a perfectly normal cervix in each vagina but the right cervix and uterus were lower in the pelvis.

The patient went into labor at 5 a.m. August 8, 1921. Cesarean section was done August 10, six hours after the onset of labor. A male child weighing 6 lbs. 9 oz. was delivered. The patient had an uneventful puerperium and was discharged from the hospital on the seventeenth day.

The operation revealed a normal tube and ovary coming off the right side of the right uterus and a normal tube and ovary coming off the left side of the left uterus in their normal situation. The right non-pregnant uterus was the size of a doubled fist and lay low down in the pelvis. The uteri were connected only by the vaginal vault. A broad thick band of peritoneum came off the sigmoid about 6 in. above the vaginal wall passed forward through the gap between the uteri and fused with the peritoneum covering the bladder.

After the birth of the baby menstruation occurred for the first and only time on February 17, 1922, when the patient again conceived. Confinement was estimated to be due November 24, 1922. The membranes ruptured at 10:30 p.m. December 7, 1922, and pains began two hours later but because they were slight the patient did not notify Mundell until 9:30 o'clock the next morning, December 8. She entered the hospital at 11 a.m. Upon examination one knee was found presenting through the cervix well down into the vagina. The spontaneous abortion was done at 1 p.m. At this time the knee could be seen plainly by separating the labia. Before the abdomen was opened the knee and vagina were bathed with alcohol. The pregnancy was found to be in the same uterus as before. The uterine scar was smooth and barely visible though the mentum was adherent to a portion of it. A female infant weighing 7 lbs. 7 oz. was delivered. The second puerperium also was normal.

EDWARD L. CORTELL, M.D.

Poeck E : The Effect of Hydramnion upon the Life Expectancy of the Child (Die Bedeutung des Amnion für die Lebenserwartung des Kindes). *Mitt. d. f. G. b. h. u. Gy. k.* 1923 13 203

Krabula found that in the cases of hydramnion at the Women's Hospital at Bonn the total mortality among the newborn was 96.2 per cent. This is in contrast to the previously accepted mortality of 25 per cent. Because of the frequent presence of developmental defects he considers it unwarranted to attempt to reduce the amount of amniotic fluid.

The author examined the material of the Koenigsberg Women's Hospital. In acute hydramnion the prognosis for the child is very poor. The mortality is greater in cases of twins. In the author's cases 40.1 per cent of the children survived. Poeck therefore considers it desirable to reduce the amount of the amniotic fluid by proper treatment but he avoids Hekel's puncture of the abdominal wall since by this procedure the child may be directly killed, the circulation in the placenta disturbed, the uterus ruptured or the vessels pierced.

As causes diabetes, diseases of the kidney and syphilis are to be kept in mind. In threatened premature birth opiates and chloral hydrate are recommended. Delivery must be accomplished with great care. The bag of waters should be ruptured with the finger during pains and the fist introduced to prevent the too rapid flow of the amniotic fluid. Particular care must be taken if the smaller parts present (umbilical cord, etc.).

THORON (G)

Van der Vort J : Colic and Biliary Infection of the Urinary Tract and Vagina During Pregnancy (Infektion des Harn- und Uterusapparates während der Schwangerschaft). *B. H. Soc. d. Obst. et Gyn.* 1923 1 230

The author reports the case of a woman 22 years old constipated since childhood who had her last period February 5. During the second month she lost weight and had morning vomiting. In April she had slight pains during and after micturition. The pains were in the urethra and lower abdomen. She complained also of frequency. Soon after micturition she had a slightly painful sensation of retention in the vesico-urethral vulvar region.

On May 3 examination showed the uterus three fingers above the pubis. There was slight tenderness in the vesical region on the lower pole of the right kidney was somewhat tender and the temperature was  $38.1^{\circ}\text{C}$ .

Treatment consisted of an enema, hot applications to the vesical lumbal region and urinary antiseptics.

Later the urinary symptoms improved but the constipation persisted. Subsequently a history of leucorrhœa was obtained. Examination showed a purulent discharge with painful ulceration at the site of the fourchette. The urine showed a pure culture of colon bacilli and the vaginal discharge colon bacilli and Gram positive cocci.

With the treatment mentioned the patient made an uneventful recovery until delivery. Delivery was normal. A slight attack of pyelonephritis followed delivery. SALVATORE DI PALMA M D

Ada R F L. Some Observations on Placental Infarcts. *Am J Obst & Gynec* 1923 vi 552

The various types of white infarcts may be regarded as the end result of the same or different processes. In a broader way one might state that all localized degenerative changes in the placenta may represent different stages of the same process or of separate and distinct processes.

One of the most striking changes seen in the placenta are the so called red infarcts or localized hemorrhagic areas. If there are no subsequent changes in these areas one must conclude either that they represent a stationary process or that the placenta is expelled before any subsequent changes take place. If neither one of these suppositions is true we must find something in the placenta which represents a later stage of the process. The accuracy of the conclusions mentioned is highly improbable. Two probable conclusions are:

1 That fibrinous or fibrous tissue in fairly homogeneous masses is the terminal stage of a degenerative process.

2 That fresh hemorrhages or localized accumulations of blood are the beginning of some pathologic process.

Unfortunately these factors do not seem to account for all the beginnings or endings seen in these localized degenerative areas.

The author summarizes his conclusions as follows:

1 All white infarcts do not fit into the same category. Therefore they are probably due to different processes.

2 The majority of the localized degenerative processes which are grouped under the term placental infarcts might lead to the formation of white infarcts if a sufficient length of time elapsed between the time of their occurrence and the delivery of the placenta.

3 A number of causes operate to produce such localized areas of degeneration in the placenta. Among these may be mentioned vascular changes such as endarteritis, periarteritis and thrombosis and localized hemorrhages resulting from static, traumatic or toxic conditions.

4 Disturbances of the afferent blood supply may be responsible for atrophic conditions resulting in degeneration of the areas supplied by these vessels.

5 In the causation of some of these degenerative conditions infection and inflammatory processes may play a rôle.

EDWARD L. CORNELL M D

Dubrowitsch E. Statistics on the Treatment of Febrile Abortion. (Statistisches zu Fieber der Gebärdenden des f. b. h. (Febrile Abortion). *Z f. f. b. h.* G. k. 1923 i. 1327

Active treatment is attended by a higher morbidity and mortality than expectant treatment. The

manner in which the uterus is emptied (by hand or with instruments) does not affect the mortality appreciably. The mortality is highest in the cases in which the operation is done previous to the patient's admission to the hospital and in cases of criminal abortion. The higher the fever at the time treatment is sought the more unfavorable the course.

KOCI (G)

De Snoo. Cesarean Section for Carcinoma of Both Ovaries and of the Uterine Cervix with Large Metastases in the Mesosigmoid (Section caesarea genitalem bideri ierst ecke der Cervice mit grossen Metastasen im Mesosigmoid). *N drl Tidskr f. Vetsk. Gynec* 1923 xx 98

A para iii 23 years old was admitted to the clinic with the diagnosis of placenta praevia. A cesarean section and supravaginal extirpation of the uterus were done after the amniotic fluid had escaped. A radical procedure was not to be thought of. After four weeks the woman was discharged in a satisfactory condition but died four months later.

The carcinomata found in the ovaries and in the cervix were histologically the same. The growth in the cervix was probably primary. Metastases were found also in the omentum. ILMERS (G)

## LABOR AND ITS COMPLICATIONS

Keller R. Non Rotation of the Head During Spontaneous Delivery (L'absence de la tête au cours d'un accouchement spontané). *Bull Soc Obst et Gynéc de Par* 1923 xii 335

The question of the internal rotation of the head during delivery has long been a subject of discussion by obstetricians.

The author explains the normal mechanism of the rotation of the head and then discusses the two variations from the normal. Inverse rotation occurs (1) when the head is too small and (2) when the head is on the pelvic floor the result being deflexion instead of flexion.

Four cases are reported in which normal rotation of the head had not occurred.

SALVATORE DI PALMA M D

Metzger and Legueu. Dystocia Due to Rigidity of the Cervix After Radium Therapy for Cancer (Dystocie par rigidité du col après curiethérapie pour cancer). *Bull Soc Obst et Gynéc de Par* 1923 x 88

Vignes H. and Cornil L. Dystocia Due to Cicatricial Stenosis of the Cervix Following the Intracervical Application of Radium (Dystocie par sténose cicatricielle du col après application intracervicale du radium). *Bull Soc Obst et Gynéc de Par* 1923 xii 190

METZGER and LEGUEU report the case of a woman 31 years old who had had a previous normal delivery and was in the third month of another pregnancy. Examination and biopsy revealed cancer of the cervix. Three months after the application of radium the cervix was practically normal.

On August 15, 1921, the patient returned to be delivered. After a labor of nine hours for some time instrumental delivery was deemed necessary on account of a fibrous ring on the cervix and considerable edema. The cervix was in section on the anterior lip as the tissues were very hard resistant and whitish. A deep wedge was applied and a child weighing 4.95 kilograms was extracted.

The patient left the hospital on August 26. The incision was then apparently healed. On June 28, 1922, she came back on account of vaginal hemorrhage. Examination showed recurrence of the malignancy. Laparotomy revealed an inoperable condition.

Atsuta and Cornish report the case of a woman 29 years old with a history of miscarriage occurring July 1910. The family physician sent the patient to a gynecological specialist for treatment for fibroid uterus. The diagnosis was based on metro-rhagical staining tests.

On March 10, 1923, the patient was admitted to the hospital because of signs of abortion which had appeared thirteen days. Examination showed atresia of the cervix. The cervix was incised in three places. A cranial mass was perforated with extraction of a living child weighing 670 grams. With uterine manipulation the placenta was found in the thickened cervix.

The author believes that no case of fibroid uterus should be treated with radium without previous examination by a competent surgeon or obstetrician and that the danger of sclerosis resulting from radium treatment should be borne in mind when young women are treated for menorrhagia.

SALVATORE DE LEMMA, M.D.

Menet J. The Method, Effect and Danger of the Administration of Pituitrin in Obstetrics. (Ann. N. Y. Acad. Med. Sci. 1923, 19: 117.) J. H. Knickerbocker (Larchmont, N. Y.) Skand. Med. 1923, 4: 133. 549.

In this article the author says that he is not to contribute anything new but to review for the general practitioner certain facts which have long been known to the specialist and to follow the results of intravenous administration of pituitrin.

In cases in which the labor pains are weak or painful, before the pituitrin is given to give the uterus a rest. In the cases of nervous women it is given with the pituitrin in order to bring about a quieting effect in combination with the analgesic effect of the pituitrin.

The author describes the intravenous injection of pituitrin in the first stage of labor as the primary method of giving analgesia. It is used to show its good results. It should be repeated to whatever extent only on the most favorable cases. Its use by the general practitioner is a favorable one until the following circumstances: (1) in the cases of multiparae when the greatest interference of the labor has passed the center of the pelvis; (2) in the cases of primiparae when the greatest circumference

of the head has passed the narrowest portion of the pelvis; (3) in the third stage of labor and (4) in cases of atonic uterus. In order to cause contraction of the uterus before the mesodermal acting ergot has had time to take effect.

REZ (2)

McGord J. R. Meddlesome Obstetrics. J. N. Y. Med. Rec. 1923, 6: 55.

The author urges greater conservatism in obstetrics and on the basis of a large experience gives the following rules and conclusions:

1. The most thoroughly mechanical of labor.  
2. Never interfere with any labor that is progressing normally. A slow labor is not an abnormal labor.

3. A full dilatation is the most common cause of late toxemia.

4. Intravenous infusion of a drug.

5. Do not rupture the membranes artificially.

6. The chief controlling factors in abnormal labor are:

7. Conserve the anatomical parts.

8. A great number of women in labor need sedatives than oxytocics.

9. Manual dilatation in an effacement of the cervix is not possible.

10. Treat every postpartum position expectantly as long as you think it possible to do so and then just a little longer.

11. Aversion performed for hemorrhage through an undilated and uneffaced cervix must not be completed.

12. Manage the third stage of labor patiently.

13. Nipple trouble always precedes a breast abscess.

14. Douches are not indicated.

15. Apply forceps only after liberal anesthesia.

16. All methods are never necessary in the resuscitation of the newborn.

C. H. K. J. R. M.D.

Himes R. W. The Relation of Utter Central Apoplexy to Abnormalities of the J. O. 1923, 22: 57.

In this article the author summarizes the information derived from literature on twenty cases of premature detachment of the normal situated placenta at the cause of uteroplacental popliteal and gives the impression of the author from a study of the 306 cases that he has collected. In 1869 and 11 times in 1901 the last nine cases of toxemic apoplexy compiled by Wilson. The reports of H. H. H. n. 254 cases of apoplexy treated in the New York Hospital and 19 cases in 212 cases treated at the St. Michael's Hospital. Numerous other cases were real but the number is not about 900.

The present state of our knowledge permits a classification of the types of apoplexy into hemorrhagic (1) that due to systemic (2) that due to local legeneration or inflammatory changes in the uterus.

placenta and decidua and (3) that due to systemic or toxæmic conditions. The first type is often associated with one of the others. The relationships of the second and third have not been determined.

The symptomatic differentiation of the three types has not been determined. The symptoms are identical but two extraneous findings may contribute to a strong presumptive diagnosis of the toxæmic form viz systemic signs of toxæmia (albuminuria increased blood pressure blood chemistry) and remarkable hardness of the uterus.

Tenness of the uterine wall is not an invariable concomitant of ordinary ablatio placenta; for it was noted in only 10 per cent of 306 cases reviewed. In cases of ordinary ablatio placenta the consistency of the uterus varies from rigidity to extreme flaccidity. Extreme rigidity of the uterus may be a pathognomonic sign of toxæmic proclivity. Positive recognition of toxæmic proclivity is possible only on inspection of the uterus.

Irrespective of the etiology of the accidental hæmorrhage the blood may be absolutely or relatively concealed. Absolute concealment means that mechanical hindrances prevent the escape of blood. When canalization takes place between the uterus and the placenta and membranes the blood appears externally thus the relatively concealed type of hæmorrhage. The one and only difference between the two forms mentioned is the evidence of external hæmorrhage.

Too often accidental hæmorrhage is diagnosed only when external bleeding appears either promptly after the onset of the condition or after many hours of absolute concealment. Delay in recognition is responsible for the higher death rate in cases of absolute concealment.

As emesis faintness loss of consciousness and abdominal discomfort are the common early symptoms of ablatio their occurrence in a woman in advanced pregnancy should arouse the suspicion of premature detachment.

The syndrome of eclampsia is markedly different from that of toxæmic proclivity. So far as we now know the pathologic findings in the latter alone show many characteristic differences. The coincident attack of eclampsia and toxæmic proclivity strongly suggests that two intense poisons are liberated which produce diverse symptoms.

Prompt recognition of ablatio determines a favorable outcome more than any particular method of delivery. Usually cases may be treated best by vaginal delivery. The best results are obtained by digital dilatation version rapid extraction with firm fundal pressure manual removal of the placenta and postpartum utero vaginal tamponade. Cesarean section should be reserved for severe cases in which the cervix is tight and for fulminating types of the condition. The routine removal of the uterus in cases of the toxæmic type is to be deprecated. Hysterectomy should be reserved for cases in which the uterus does not retract and for those with possible infection.

The mortality based on cases collected from the literature is too high. Early recognition of the condition with prompt delivery should reduce it to from 5 to 10 per cent. EDWARD L. CORNELL, M.D.

Bernadas H. E. Abruptio Placentæ. *N Orleans M J* 923 1 vi 33

The author urges that more cases of abruptio placenta be reported in order that the incidence of the condition may be determined. The case reported in this article was that of a 24 year-old primipara who last menstruated September 22 1900. On April 20 at 9 a.m. she caught her arm between a door and the door frame and became hysterical. She succeeded in freeing her arm only after considerable effort and struggle. Except for nervousness she experienced no ill effects until Thursday at 10 20 a.m. when she complained of severe pain in the back. This was followed by abdominal pain.

Examination revealed about one finger dilatation of the uterine cervix. At 3 30 p.m. a severe hæmorrhage occurred. The bleeding gradually diminished and at 7 p.m. it ceased but the patient continued to complain of pain in upper abdomen and on the afternoon of April 22 she had a temperature of 103 degrees F. The following day her temperature was 100 and her pulse 130 and of small volume. The uterus was round hard and woody. There was a cervical dilatation of two fingers and head presentation was easily discernible. Auscultation revealed no fetal heart tones or movements. A diagnosis of abruptio placenta was made.

Attempts at gentle digital dilatation made under ether anesthesia were unsuccessful. An ampoule of pituitrin was therefore given hypodermically a self-retainer was inserted into the vagina and the cervix brought down with a volsella. Two traction sutures were inserted in the anterior cervical lip and the cervix was pulled down so that a transverse incision could be made through the mucous membrane over the anterior surface of the vagina. The bladder was pushed back and a longitudinal incision on then made extending up through the wall of the cervix. This allowed ample room for the immediate application of forceps to the fetal head. The fetus had been dead about three days. When the placenta and membranes had been delivered a large quantity of black gum-mous blood and blood clots escaped. The wound were closed in the usual manner a drain being placed in the cervical canal and a small pack in the vagina. Another hypodermic of pituitrin was then given and the patient put to bed with a Murphy drip of normal salt solution and black coffee. Uneventful recovery followed.

HARRY W. FISK, M.D.

Keller R. Rupture of the Articulations of the Pelvis and Its Relation to the Mechanism of Delivery. *Lancet* 1903 1 1337

The osseous girdle of the pelvic basin during delivery may rupture at the level of a single articulation.

tion leaving all the others intact but generally if dislocation of one of the three articulations occurs the others give way more or less. The rupture may be complete or incomplete. It may be at the level of the fibrocartilage or at the point of its insertion to the os pubis.

Only six cases of spontaneous rupture of the articulations of the pelvis have been observed in six years in Keller's clinic.

The predisposing causes given are rickets, osteomalacia, relaxation of the ligaments during pregnancy, advanced age and a large number of previous pregnancies. Spontaneous rupture of these articulations may occur with the force acting at the level of the superior strait at the time of internal rotation of the head or at the level of the inferior strait at the time of the birth of the head.

In the six cases observed the rupture occurred three times at the symphysis pubis twice at the sacrospinous articulation and once at both the symphysis pubis and at the sacrospinous articulations.

SCHWABER DE L'ART M D

Pettersson A S. Complete Cervical Avulsion of the Fetal Vaginalis During Labor (Vitellogenesis). Acta Obstet. Gynec. Scand. 1914, 13, 35.

Cervical avulsion of the portio vaginalis during labor is very rare. Only twelve cases have been reported in the literature.

The most common cause of this complication is a large fetus with a hard head. The injury has occurred only in cases of head presentation. Whether the time of rupture of the bag of waters is of any importance or not has not been determined.

In the cases reported by the author in this article the labor pains were extremely severe throughout the labor and the labor trauma was of long duration. Labor terminated spontaneously in only four cases. Hemorrhage did not occur. The conditions to which the injury has been ascribed are disturbances of the circulation dependent upon mechanical causes, serous infiltration and laceration (secondary). In all except three cases the outcome was favorable. Nothing is known concerning subsequent labors.

The prognosis for the child is poor. In only two cases was the child born alive. One of the cases, as that of a 38 year old primipara. The bag of waters ruptured after four days of labor pains and four hours later a feeble cry was necessary because of asphyxia. The child weighed 9000 gm. It was deeply asphyxiated but was resuscitated. The torn off portio vaginalis followed spontaneously. A circular portion of the tissue cover of the child's head like a cap. Pathological examination revealed marked infiltration of polymorphous leucocytes which is to be regarded as inflammation due to irritation. The patient was discharged as cured on the thirteenth day.

LETZ (G)

Schwab F. The Treatment of Perforation of the Uterus (sur Frage der Behandlung der Uterusperforation). Z. f. Geburtsh. u. Gyn. 1913, 21, 1451.

Nine cases of perforation of the gravid uterus during abortion are reported.

At one point near the site of the perforation microscopic examination revealed a markedly wide progression of the tufts of the placenta into the myometrium and almost to the peritoneal covering of the uterus.

Conservative therapy is indicated if the injury to the uterus is aseptic and uncomplicated if the uterus is known to be free from infected abortive material and if the preexisting wound is so small that there is no danger of severe hemorrhage into the abdominal cavity. In every case of severe hemorrhage and threatened infection as well as in cases in which there is the slightest suspicion of injury to neighboring organs exploratory laparotomy is indicated. Further therapeutic measures such as extirpation, supravaginal amputation or suturing depend upon the exigencies of the case.

It is very important to have a physician assigned to the case who will keep a thorough and comprehensive record.

III SCHERER (G)

D. Saint Blaise Metzger and Le Lorrain. Discussion of Methods of Procedure in Retention of Membranes (Contribution à l'étude des membranes). Bull. Soc. Obst. et Gyn. 1914, 1, 923, 72.

Saint Blaise is of the opinion that in cases of retention of membranes immediate interference is warranted proving the cases are at term or near term. He believes that every thing possible should be done to avoid this condition but if there is retention he feels that immediate interference with either a gloved hand or a dull curette is indicated. Of 347 patients treated during 1913 and 1914 for retention of membranes 100 had fever but only one died of a severe infection. No phlegmasia was observed.

All of the women were beyond the sixth month of gestation.

Metzger on the contrary believes in noninterference as he thinks that interference opens avenues for infection. He entirely condemns interference in all operative practice because aseptic conditions can not be maintained even in the homes of patients in moderate circumstances. He states that in properly selected cases in hospitals good results may be obtained by intervention. But in his series the results have been more than satisfactory without it. One reason for not interfering immediately is the difficulty in separating the membranes, their separation after caesarean section, an example. Statistics are given to prove that temperatures are higher with intervention than without it.

Le Lorrain is in accord with Metzger considering routine intervention for postpartum retained membranes as very dangerous. While he admits that in

a well conducted hospital with expert care it may give satisfactory results it is not a method to be generally adopted  
SALVATORE DI PALMA M D

## PUERPERIUM AND ITS COMPLICATIONS

Rouvier J M S vere Puerperal Eclampsia with 40 Grams of Albumin Treated by Large Doses of Morphine Early Diuresis Cure (E l m p e puerpér l g a avec 40 gr mmes d lbumi tra tem t p r l a morphi e à d s m ssi es et ses adju a ts retour précoc del diuré e guér n) B H S e d obst i d gy f d e Pa 1923 xii 27

The author reports the case of a para ii 25 years old who was admitted to the hospital with eclamptic convulsions and in coma. Examination showed anasarca cyanosis and stertorous respiration. The temperature was 37 degrees C the pulse 100 and the respiration 36 per minute. On catheterization 120 c cm of urine were obtained and examination showed 40 gm of albumin to the liter.

Treatment consisted of stomach lavage intestinal lavage and the administration of morphine 3 cgm being given immediately and 1 cgm every half to one hour thereafter for four doses. In this interval there were three eclamptic seizures each lasting about three minutes.

About an hour and a half after the last injection another eclamptic seizure lasting about ten minutes occurred. One centigram of morphine was injected two minutes after this seizure.

Signs of pulmonary oedema became apparent. A venesection was performed and 450 c cm of blood were removed. One centigram of morphine was given five minutes after venesection and four more injections of cgm were given during the next few hours making a total of 12 cgm in twelve hours. The patient gradually improved and labor began normally. To avoid shock a forceps extraction was performed. The next day the urine measured 100 c cm and contained only 6 gm of albumin.

The patient improved until December 13 when she developed pneumonia this resolved. She left the hospital on January 1.

The author advocates large doses of morphine besides the usual measures in the treatment of this condition.  
SALVATORE DI PALMA M D

Grage t O The Puerperal Morbidity in Cases of Trichomonas Colpitis Untreated and Treated Before Delivery (W bent e m l d t t bei ant partum ni hteb delte u d t pa tum be hand lten Faell n Tr home denk lpt ) W d sch f G b ish Gy k 9 3 L iv 37

Following Liss in his development of Hoehe's proposal the author has given the antepartum vaginal treatment with douches of bichloride of mercury and 10 per cent boroglycerin in every case in which the vaginal secretion was found to contain trichomonas.

Of 312 women delivered 249 were free from trichomonas a pronounced trichomonas colpitis was present in fifty five. Of the latter thirty nine were

free from trichomonas up to the time of delivery. The total puerperal morbidity in cases without trichomonas amounted to 11.3 per cent. In cases of trichomonas colpitis not treated antepartum it was 29.1 per cent in the treated cases only 16.4 per cent and in the cases that became negative after treatment only 7.7 per cent.

As a result of internal examinations in the presence of a discharge containing trichomonas the morbidity increases and is highest after operative deliveries.

In most of the cases a cure of the colpitis is possible with the Hoehe treatment provided it continued sufficiently long.  
STRAKOSCH (G)

Liss W The Influence of Trichomonas Colpitis upon Puerperal Morbidity (D r Enß der Trichomonadenkolpitis auf die Wahnheitsmorbidität) M tschr f G b ish Gyn ek 1923 lvi 3

The author regards trichomonas colpitis (Hoehe) as a disease entity. The effect of the trichomonas colpitis upon the puerperal morbidity was investigated in 405 cases. In 326 of the cases conditions in the genitals were normal in seventy nine cases (10.5 per cent) there was more or less pronounced trichomonas colpitis this was not treated. In the normal cases there was a puerperal morbidity of 15.3 per cent with no deaths while in the seventy nine carriers of trichomonas there was a total morbidity of 29.1 per cent.

The disturbances during the puerperium were considerably greater after internal examinations and operative deliveries.  
STRAKOSCH (G)

Voron J Durand P Sédallan P Rema ks on the Etiology of Puerperal Infections (N te u l é t l g e d l i f e c t n pue p c a l ) P H S e d b t i d gy d P 1923 ii 37

In a bacteriological study which is as yet incomplete the authors have found that all puerperal infections are not due to the same strain of streptococcus.

Of eighteen cases of streptococcus infection coming from the same service eleven were classified as belonging to the same strain and three to a different strain. In the eleven cases due to the same strain infections occurred in patients in whom no cause of contamination could be found.

During the year the same strain of streptococcus infected patients of the same service several months intervening between outbreaks. One of these infections occurred in March 1922 two in April 1922 one in August 1922 one in September 1922 one in October 1922 and one in March 1923.

After discussing the possible sources of infection and eliminating most of them the authors conclude that probably carriers harbor these germs in the throat. However they are not prepared to prove this statement and will report more fully the result of their research in later articles.

SALVATORE DI PALMA M D



tion leaving all the others intact but generally if dislocation of one of the three articulations occurs the others give way more or less. The rupture may be complete or incomplete. It may be at the level of the fibrocartilage or at the point of its insertion to the os pubis.

Only six cases of spontaneous rupture of the articulations of the pelvis have been observed in six years in Keller's clinic.

The predisposing causes given are rickets, osteomalacia, relaxation of the ligaments during pregnancy, advanced age, and a large number of previous pregnancies. Spontaneous rupture of these articulations may occur with the force acting at the level of the superior strait at the time of internal rotation of the head or at the level of the inferior strait at the time of the birth of the head.

In the six cases observed the rupture occurred three times at the symphysis pubis, twice at the sacrospinous articulation and once at both the symphysis pubis and at the sacrospinous articulations.

SALVATORE DI PALMA, MD

Pettersso A. S. Complete Circulation of the Portio Vaginalis During Labor (Vollständige Zirkulation der Gebärmutter während der Geburt). *Monatsschrift für Geburtshilfe und Gynäkologie* 1924, 1: 315.

Circulation of the portio vaginalis during labor is very rare. Only twelve cases have been reported in the literature.

The most common cause of this complication is a large fetus with a hard head. The injury has occurred only in cases of head presentation. Whether the time of rupture of the bag of waters is of any importance or not has not been determined.

In the cases reported by the author in this article the labor pains were extremely severe throughout the labor and the labor trauma was of long duration. Labor terminated spontaneously in only four cases. Hemorrhage did not occur. The conditions to which the injury has been ascribed are disturbances of the circulation dependent upon mechanical causes, osseous infiltration and rigidity (secondary). In all except three cases the outcome was favorable. Nothing is known concerning subsequent labor.

The prognosis for the child is poor. In only two cases was the child born alive. One of the cases was that of a 35-year-old primipara. The bag of waters ruptured after four days of labor pains and four hours later a forceps delivery was necessary because of asphyxia. The child weighed 1000 gm. It was deeply asphyxiated but was resuscitated. The external portio vaginalis followed spontaneously. A circular portion of the tissue covered the child's head like a cap. Pathological examination revealed marked infiltration of polymorphonuclear leukocytes which is to be regarded as inflammation due to infection. The patient was discharged as cured on the thirteenth day. LEXEL (G)

Schwab F.: The Treatment of Perforation of the Uterus (Zur Frage der Behandlung der Uteriperforation). *Zeitschrift für Geburtshilfe und Gynäkologie* 1923, 21: 431.

Nine cases of perforation of the gravid uterus during abortion are reported.

At one point near the site of the perforation microscopic examination revealed a markedly wide progression of the tufts of the placenta into the myometrium and almost to the peritoneal covering of the uterus.

Conservative therapy is indicated if the injury to the uterus is aseptic and uncomplicated; if the uterus is known to be free from infected abortive material and if the perforating wound is so small that there is no danger of severe hemorrhage into the abdominal cavity. In every case of severe hemorrhage and threatened infection as well as in cases in which there is the slightest suspicion of injury to neighboring organs exploratory laparotomy is indicated. Further therapeutic measures such as extirpation, supravaginal amputation or suturing depend upon the exigencies of the case.

It is very important to have a physician assigned to the case who will keep a thorough and comprehensive record. HIRSCHER (G)

De Saint Blaise Metzger a. d. Le Lorrain. Discussion of Methods of Procedure in Retention of Membranes (Discussion des méthodes de traitement des membranes). *Bulletin de la Société de Gynécologie et d'Obstétrique* 1923, 72.

SAINT BLAISE is of the opinion that in cases of retention of membranes immediate interference is warranted provided the cases are at term or near term. He believes that everything possible should be done to avoid this condition but if there is retention he feels that immediate interference with either a gloved hand or a dull curette is indicated. Of 347 patients treated during 1921 and 1922 for retention of membranes 100 had fever but only one died of a severe infection. No phlegmia was observed.

All of the women were beyond the sixth month of gestation.

Metzger on the contrary believes in non interference as he thinks that interference opens avenues for infection. He severely condemns interference in also private practice because aseptic conditions can not be maintained even in the homes of patients in moderate circumstances. He states that in properly selected cases in hospitals good results may be obtained by intervention but in his series the results have been more than satisfactory without it. One reason for not interfering immediately is the difficulty in separating the membranes and their separation after cesarean section; in simple statistics are given to prove that temperatures are higher with intervention than without it.

LE LORRAIN is in accord with Metzger, considering routine intervention for postpartum retained membranes as very dangerous. While he admits that in

a well conducted hospital with expert care it may give satisfactory results it is not a method to be generally adopted  
SALVATORE DI PALMA M D

### PUERPERIUM AND ITS COMPLICATIONS

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Bull Soc d'obstet gynecol P 1923 III 7

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Gratier O The Puerperal Morbid ty in Cases of Trichomonas Colpitis Untreated and Treated Before Delivery (Wohlbefinden und aseptische Geburt bei Trichomonas colpitis un- und behandelt)  
Fortschr Geb Gyn ek 923 I 37

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Monatsschr Geb Gyn ek 1933 I 31

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Bull Soc d'obstet gynecol P 1933 37

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SALVATORE DI PALMA M D

**Ellerbrook N** The Use of Continuous Drip Irrigation in Puerperal Fever (*J. c. Anwe. l. g. d. t. p. m. c. ten. T. x. l. h. i. g. a. t. n. b. e. m. l. r. p. e. r. a. l. b. e.*) *De t. h. e. m. d. h. c. h. s. h.* 923 xl 721

Ellerbrook is opposed to Wagner's method of treating puerperal sepsis which consists in drip irrigation of the uterus. He is opposed to any manipulation of the uterus and is convinced that the infection in puerperal fever is not confined to the mucosa but that it attacks also the deeper layers of the uterus. Under certain conditions this method may be very harmful in the hands of the general practitioner.

N. RUDMAN (P)

**Safford H B** The Surgical Treatment of Puerperal Infection (*V. l. k. J. f. c. J. d. R.* 93 cx 536)

The most important factors in the handling of puerperal infections are promptness of action and accurate localization of the initial focus of infection. Only too seldom is an investigation made into the probable source of a rise of temperature postpartum. Often the focus of infection is not in the generative organs. When the infection is in the generative tract it may involve one of the following four regions: (1) the perineum (2) the cervix (3) retained secundines (4) the interior of the uterus. Some of these infections remain localized while others spread very quickly.

In the case of the perineum infection occurs in areas which have not been repaired and also at the site of a primary perineorrhaphy. The chances for infection following repair are augmented by the severe injury of the tissues and by too tightly drawn sutures. If infection has set in all sutures should be removed and the torn surfaces kept from contact with each other by strongly antiseptic wet gauze packs which should be changed frequently. The patient should be placed in the extreme Fowler position.

Infections of the cervix are most serious for if neglected they lead to a generalized infection and septicæmia. Tears should be sought for more frequently.

When the infection is due to retained secundines the question of curettage arises. Safford believes that if the uterus is explored or an attempt is made to remove foreign material this should be done with the hand rather than with sharp instruments.

Infection of the interior of the uterus usually takes place at the placental site. Carrel has demonstrated the value of irrigating the uterine cavity with powerful antiseptics through glass tubes to prevent the spreading of infection. The method is of value only in the early stages.

When the infection spreads beyond the uterus the route may be through the endometrium leading to salpingitis, ovariitis, pelvic abscess and peritonitis. When it is spread by the lymphatics, pelvic cellulitis and septicæmia result. Propagation by the blood stream is often followed by thrombophlebitis, pyæmia and septicæmia.

HARRY W. F. V. M.D.

## NEWBORN

**Loriot A** Statistical Study of the Length of the Umbilical Cord Based on 1000 Cases at the Obstetrical Clinic of Marseilles (*Et. le. tat. t. q. l. l. g. u. du. rd. i. p. o. t. n. t. o. o. c. à. l. c. l. i. n. i. c. d. e. l. é. i. t. é. l. e. i. M. s. e. l. l.*) *B. ll. Soc. d. h. i. t. d. g. v. f. d. f.* 93 x 56

The length of the umbilical cord of the fetus at term is far from constant. It varies considerably. Between the extreme variations reported in the medical literature the authors have observed that the length most frequently found fluctuates around a certain figure. Garnier, Chantreuil and Charpentier giving 45 to 60 cm. Cazeaux 54 to 59 cm. and Noëgle 48 to 54 cm. The majority of modern obstetricians give the average length as 50 cm.

In the recent research conducted at the Obstetrical Clinic of Marseilles 1000 cases at term were studied. In newborns weighing at least 3 kgm. the author found that the minimum length was 23 cm. and the maximum 95 cm. The length of the umbilical cord is shown in the following table:

| Length<br>cm | No. of cases |
|--------------|--------------|
| 20-30        | 3            |
| 30-40        | 3            |
| 40-50        | 90           |
| 50-60        | 536          |
| 60-70        | 57           |
| 70-80        | 0            |
| 80-90        | 1            |
| 90-100       | 7            |

The table shows that in more than half of the cases the cord is from 50 to 60 cm. the average length is 56 cm. and the cords are frequently uncommonly long rather than short. This accounts also for the relative frequency of twisting of the umbilical cord around the fetus and the rarity of complications due to shortness.

S. L. V. M.D.

**Okeef C. D** The Postmortem Child (*Im. J. O. l. c. Gy.* 93 x 35)

Of 152 infants weighing 4000 gm. or more forty-eight were the offspring of 104 mothers of multiparæ. One hundred and forty-eight were white and four were colored. The mother's pelvis was classified as normal in 144 cases generally contracted in three flat in one fusiform in one and just marginally. On the basis of the men'strual history thirty-nine infants were from four exactly at term and thirty-six postmature. In thirty-two cases the menstrual history was not recorded.

Of the thirty-seven infants not at term, thirteen were preterm, thirteen were at term, and one was postterm. In two cases the infant was stillborn. Of the pelvis, fifteen were normal, fifteen were six, six were double, and one was of the type of the pelvis was necessary. In one case the mother was done and in another the child was delivered in the cephalopelvic position and a third leg was resulting.

Of the seventeen infants in the occiput left posterior position fourteen rotated spontaneously and one was delivered by version. Two were delivered in the occiput left posterior position. One of these was severely bruised about the head and neck but recovered the other was stillborn.

Of the fifty four infants in the occiput posterior position two were stillborn and two died within thirty six hours from birth injuries. Two received forceps injuries which resulted in abscess formation but recovered promptly. Another received severe injuries behind both ears and apparently recovered after prolonged treatment but since that time has shown muscle weaknesses and intracranial symptoms which indicate that it will be an invalid for life. The occiput posterior position was found to increase directly with the weight.

The average length of labor as recorded in 144 cases was thirteen hours nineteen minutes. The primiparae averaged nineteen hours fifty seven minutes and the multiparae nine hours fifty five minutes.

Ten fatalities made the infant mortality 6.5 per cent. In the second thousand deliveries at the Barnes Hospital St. Louis of infants weighing over 2500 gm. the infant mortality was 2.16 per cent and in the private cases in the same series was only 0.73 per cent.

From the study of this series of cases and a review of the literature the following conclusions may be drawn:

1. The delivery of large postmature babies is difficult and associated with considerable danger of injury to the mother and a high infant mortality and morbidity.

2. The large postmature infant is found in the occiput posterior position relatively often and is rotated less readily by the Scanzoni maneuver than the infant of normal size.

3. The choice of the method of effecting delivery is a greater problem and its execution more strenuous in the cases of postmature infants than in those of infants of normal size.

4. The cause of the prolongation of the period of gestation is not definitely known; an overdeveloped fetus may be a predisposing factor.

EDWARD L. COE, M.D.

### MISCELLANEOUS

Frankl O. The Relation Between the Placenta and the Secretion of Milk. *Am J Obst & Gyn*

1931 399

Abrams S. F. The Feeding of Placental Extract to Mothers. Its Effect on Breast Fed Infants. *Am J Obst & Gyn*

1931 450

Frankl states that in spite of many investigations the question of the relation of the placenta to lactation has remained unsolved though it is known that presumably in conjunction with ovarian function the placenta is responsible for the hyperaemia and development of the mammary glands during

pregnancy and for the formation of colostrum. True milk appears however only after the expulsion of the fetus. It is still to be determined whether the placenta while stimulating the breast gland simultaneously inhibits the secretion of milk. Obviously this question is closely connected with the question as to whether the placenta is an organ endowed with an endocrine function.

That the fetus is not the deciding factor in the secretion of milk is proved by the occurrence of active lactation subsequent to the expulsion of a hydatiform mole or a dead fetus.

The influence of the nervous system on lactation cannot be regarded as decisive because normal function of the breasts has been observed in cases of complete tranverse lesion of the cord and in animals normal secretion has occurred in mammae successfully transplanted to other regions.

To determine the validity of Halban's theory that the cause of the change of the secretion of colostrum into the secretion of milk is the loss of the placenta, Frankl transplanted the placenta of mice within ten or twelve days of full term to the backs of other mice in approximately the same stage of pregnancy. The results were as follows:

Mice from a strain known to be able to suckle their young satisfactorily bore litters of five or six. The newborn mice were normal in appearance and immediately began to suckle. Invariably however they died within five to seven days, evidently from starvation.

Investigation demonstrated that the mammae of the mother animal were secreting colostrum instead of milk. When the transplantation was unsuccessful lactation proceeded normally.

Therefore it is evident that the successful transplantation of a placenta to a pregnant animal causes persistence of colostrum secretion.

This ability of the placenta to prepare the breast during pregnancy for its secretory function and at the same time to inhibit its actual function has its perfect analogy in the function of the corpus luteum.

ABRAMS reports the effects of feeding desiccated placenta in a series of seventy six cases at the St. Louis Hospital. Markedly abnormal cases such as those of puerperal infection with a high temperature and those of mothers with babies so premature and small that they were unable to nurse were excluded.

On account of the impossibility of forecasting the supply of milk it was very difficult to interpret the results. It seemed best therefore to compare a fairly large group of women with another group which did not receive placental tissue but whose care and food were otherwise the same. The infants of the mothers who were given the placental tissue are classed as Group 1 and the others as Group 2.

The average weight of the infants of Group 1 was 3278 gm. while that of the infants of Group 2 was 3339 gm. Accordingly there was a difference of 61 gm.

The average initial loss of weight in Group 1 was 243 gm. and in Group 2 314 gm. Therefore while the average weight in the two groups was about the same, the initial loss was greater in Group 2.

In checking the amount of gain in Group 1 the author was surprised to find that although a greater number of babies regained their birth weight by the tenth day, the amount of the gain was less than in Group 2. The average gain in Group 1 was 57 gm. and that in Group 2 142 gm. By the tenth day 49.7 per cent of the infants in the first group had regained their weight but only 30 per cent of those in the second group.

The claim that the mother's milk comes in sooner if the placenta is fed before delivery was not substantiated.

There is however some difference in the time at which the babies began to gain weight. Taking the fourth and fifth days together 86 per cent of the infants of Group 1 and only 68 per cent of those

of Group 2 gained weight. Sixty and three tenths per cent of those in Group 1 began to gain weight on the fourth day of life but only 30 per cent of those of Group 2.

These two series of observations closely resemble those of Cornell and Van Hoosen. Although they show that placental medication influences either the milk secretion or the immediate growth of the infant, it is evident that neither a true galactagogue nor the chief stimulus of milk secretion has been discovered in this placental tissue. The results have not been sufficiently definite. Abrams believes that if the placental secretion truly stimulated the secretion of milk, the feeding of large amounts would produce distinctly apparent effects in most cases.

In conclusion, Abrams states that the best stimulus to milk secretion so far discovered is a large hungry baby and a co-operating mother.

EDWARD L. COLELL, M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Rehn E and Guenzburg L Functional kidney  
Diagnosis with Respect to Body Reaction  
(Funktio elle Niere d gn t k m t ko rperigenen  
Reagenzi n) *Kf W hnsch* 923 11 19

The authors show that indigo carmin is excreted more rapidly in an alkaline urine after the intravenous injection of sodium bicarbonate. On this hypothesis they attempted to determine the value of the accommodation of the kidney to different reactions as an indication of renal function.

The examination was made in the morning on a fasting stomach. 20 drops of dilute hydrochloric acid in from 300 to 400 c cm of water having been given two hours before. The ureters were catheterized and the hydrogen ion concentration of the urine was determined on both sides after the method of Michaelis (with indicators). 50 c cm of a 4 per cent sodium bicarbonate solution were then injected intravenously and the urine tested every two to five minutes.

The results were as follows. The diseased kidney accommodated itself more slowly to the production of alkaline urine, the rapidity in general corresponding to the excretion of dyestuffs. There was a far reaching parallelism between the changing capacity of a kidney and the concentration of the urea in the urine produced by it. The conditions of the test must be fulfilled accurately. SIEBECK (G)

Kretschmer H L Pyelitis of Pregnancy *J Am M As* 1931 585  
Falls F H Pyelitis of Pregnancy *J Am M As* 1931 590

KRETSCHMER reviews the reports of others and cites the results in twenty-five of his own cases. Intestinal stasis and dilatation of the ureter and renal pelvis with resulting urinary stasis he regards as important predisposing causes of pyelitis during pregnancy. He has found that lavage of the pelvis with 2 per cent silver nitrate solution gives good results. If this treatment fails after thorough trial rapid termination of the pregnancy is probably indicated. Surgical procedures such as nephrotomy and nephrectomy are rare, if ever justified.

FALLS after reviewing the literature reports the results in forty cases and draws the following conclusions:

The bladder of the normal pregnant woman contains a certain amount of residual urine plus in most cases colon bacilli or staphylococci or both.

Dilatation of the ureter and oedema of the mucosa of the bladder and ureter with antiperistaltic action of the ureter probably play an important part in the causation of pyelitis of pregnancy.

Bacteriolysins and agglutinins are increased in the blood of most women who are reacting clinically to this infection and these antibodies are transmitted to the fetus.

This acquired immunity has an important bearing on the failure of these patients to develop puerperal sepsis.

Cesarean section should not be practiced to avoid contamination of the uterus by infected urine except possibly in cases in which failure of the usual antibody formation can be demonstrated.

The condition is associated with a considerable loss of weight.

A low leucocytosis and a moderately severe secondary anemia are commonly seen in this infection.

Dilatation of the ureter: the rule in such patients but usually decreases after pregnancy.

Recurrence of the symptoms may be totally absent in succeeding pregnancies. This may be due to immunity developed during the primary pregnancy.

The prognosis for the fetus is not very favorable. O CAR E NADEAU MD

Hirst J C The Treatment of Pyelitis by Ureteral Catheterization and Irrigation of the Kidney  
*Pel is* 1063 *M J & M d R* 1923 c 11  
533

Until recently pyelitis was rarely diagnosed correctly. The bacteria causing the condition are usually the colon bacilli. The symptoms are fever and pain in the lumbar region, a polymorphonuclear leucocytosis and pyuria. Some cases are chronic from the beginning. The pain is a dull ache with exacerbations, is constant in acute cases and is intensified by bimanual pressure. The second point of pain is where the ureter crosses the pelvic brim; this simulates appendiceal pain. Women should never be operated upon for such pain until they have been given a cystoscopic examination. Tenderness is usually noted on vaginal palpation at the point where the ureter enters the bladder. The cystoscope will show a triangular area of erosion with the point at the ureteral mouth and the ureter will spout cloudy urine.

Palliative treatment is a waste of time. The ureter should be catheterized and from 8 to 15 c cm of 10 per cent silvol or neosilvol instilled. The injection should be given gently and stopped if the patient complains of pain in the back. In acute cases the rule is immediate marked improvement in the temperature, leucocytosis and comfort. In some cases one treatment is sufficient while in others three or four at forty-eight hour intervals are necessary. Even when one treatment suffices to clear up the

symptoms it is wise to repeat the treatment once or twice. In pregnancy pyelitis is nearly always acute. As these cases react well to the instillation treatment the induction of labor is not necessary. In children one instillation of from 2 to 5 c.c. is sufficient.

The author employs the Brown Buerger cystoscope. After use it is washed in water sterilized in alcohol and ether and kept in a jar with powdered formaldehyde.

BRUNN F. ROLLER, M.D.

**Smitten A. G.** *Transplantation of the Ureter Into the Rectum* (Ueber Ureterentransplantation in das Rectum). *Verhandl. d. R. S. Ch. Kongr. Petrograd* 1923.

Urinary fistulae are observed much more frequently in Russia than in western European countries. Therefore implantation of the ureter into the rectum is done more frequently by Russian surgeons than by those of western Europe. Besides the typical Maydl operation which often is impossible simple implantation of the ureter is done.

The author reports three cases of his own. In the first a case of cancer of the uterus, parametrium and urinary bladder death occurred from cachexia at the end of two weeks. In the second a case of cancer of the urinary bladder death resulted from peritonitis at the end of seven days. In the third a case of destruction of the vesicovaginal wall by gangrene following typhus the patient survived the operation by two years.

Good permanent results were reported by Tichoff from one to three years after the operation by Alexandroff after nine years by Lederoff after five years by Oppel after two and one half years and by Morosowa of Kadyn's clinic after two years.

In the discussion of Smitten's paper Orzel of Petrograd stated that he operates according to Tichoff's method. Ascending infection after the operation is not always avoidable but the body is able to deal successfully with an infection of low virulence. In order to prevent infection everything must be done at operation to prevent subsequent kinking and stricture of the ureter.

MIROTORZEW of Lwowoff referred to nine cases of implantation of the ureter into the intestine which he had not reported previously. He stated that while Maydl's operation gives good results it is not always possible and is attended by greater trauma and immediate danger than simple implantation of the isolated ureter.

LISOWSKAJA of Petrograd reported seven cases of implantation of the ureter into the pelvic colon. Death resulted in two cases—in one from purulent pyelonephritis and in the other from peritonitis. In two cases in which an autogenous vaccine of bacillus coli was employed prior to operation the postoperative course was favorable. In one case which was under observation for two years there was no evidence of disease of the kidney.

TAWILDAOFF of Petrograd stated that the Maydl operation which conserves the tonus of the ureteral

openings is preferable to simple implantation of the isolated ureters into the intestine. Its chief disadvantage being that it is not always possible. According to the technique used by him the ureters are embedded in 2-cm. incisions made in the intestinal wall down to the mucosa and the mucosa is then incised. Thus having been done the sero-muscularis is sutured over the ureters the suture taking in the ureteral wall and the perietal peritoneum is sutured over all.

MARTYNOV of Moscow reported four cases of implantation of the ureters into the sigmoid flexure. Death occurred in one case but in three the operation was successful.

GREGORY (Z)

## BLADDER URETHRA AND PENIS

**Wichniewski A. W.** *Operative Treatment of Stricture of the Urethra by the Formation of a Canalized Urethra in the Glanular Tissue* (Operative Behandlung der Strikturen der Harnröhre im Glanulargewebe). *Verhandl. d. R. S. Ch. Kongr. Petrograd* 1923.

By means of an arch shaped preteral incision on the perineal portion of the urethra is exposed down to the prostate. At the middle of the preteral incision a longitudinal incision is made to the root of the scrotum. The character and size of the stricture are determined by the introduction of a suitable bougie. The stricture is excised. The thickest possible elastic catheter is then introduced into the bladder and left in place as a retention catheter. A suprapubic incision is then made. A thick long silk ligature is carried from the bladder through the catheter to facilitate its replacement following removal.

In the closure of the wound an opening is left at the juncture of the arch shaped incision with the longitudinal incision and through this opening a fine catheter is introduced to the catheter in the urethra. The retention catheter is left in place for a month. This is possible because the secretion is carried off through the drain and not through the anterior opening of the urethra. After a month a permanent canal has been formed around the catheter.

Ten patients with impenetrable strictures of the urethra were treated in this manner. The results were good. Subsequently a bougie was introduced every now and then. The author considers as cured those cases in which the caliber of the newly formed canal is maintained for two months.

GREGORY (Z)

## GENITAL ORGANS

**Wilensky A. O.** and **Samuel S. S.** *Acute Deferentitis and Funiculitis*. *Ann. Surg.* 1923, Lxxv, 745.

Funiculitis and deferentitis are differentiated anatomically by the fact that the spermatic cord extends only from the internal abdominal ring to

the testicle while the vas deferens—its main constituent—extend through the internal abdominal ring along the lateral pelvic wall to the base of the prostate

Acute deferentitis and funiculitis may be classified into three main types (1) that of acute gonorrhoeal origin (2) that due to streptococcus infection (endemic in tropical countries) and (3) that of indeterminate origin with and without abscess formation

Two cases of the third group are described. Both were operated upon and in both there was uneventful recovery

Among the etiological factors to be considered in these cases are (1) trauma (2) a preexisting infectious disease such as rheumatism or influenza and (3) metastatic infection and suppuration. The first patient whose case is reported gave a history of influenza three months previously but the importance of this history was extremely problematical because of the paucity of clinical and laboratory evidence. There also was a previous middle ear infection but as sinus thrombosis did not occur there was no clinical evidence of such a complication. In the second case reported the importance of a gonococcus infection thirty one years previously was extremely problematical

In the differential diagnosis the following conditions must be borne in mind: abscess of the abdominal wall, irreducible hernia, appendicitis with abscess, abscess in a hernial sac, thrombosis of varicose veins of the cord, haematoma of the cord,

tuberculosis of the vas deferens, gumma of the cord, neoplasm of the cord or in the inguinal canal, osteomyelitis or infected neoplasm of the os pubis and psoas abscess

In gonorrhoeal cases without pus formation operative interference is contra-indicated. When pus has formed however adequate incision and drainage are indicated. In the endemic type complete excision of the cord is advisable and the wound should be kept wide open with gauze packings. In cases of indeterminate etiology with or without abscess formation incision down to the cord and evacuation and drainage of the abscess are indicated

LOUIS NEUWELT M.D.

## MISCELLANEOUS

Woltschewsky J. B. The Treatment of Disturbances of Urination with Magnesium Sulphate (Ueber die Behandlung der Harnstauungen durch subcutane Injektionen von Magnesiumsulfat) *Arch. f. urol.* 1931, 3, 11-29

From observations made in the clinic the author finds that incontinence and retention of urine which depend upon diseases of the spinal cord as well as postoperative retention of urine can be cured by the subcutaneous injection of 25 per cent magnesium sulphate solution (1.0 to 1.5 c.c. per dose). This treatment gives good results also in cases of incontinence of spastic origin in postoperative retention of feces and in cases in which purgatives can not be given by mouth. SERCK (Z)



# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Herrf F P : Giant Cell Tumor *J Am M Ass*  
1923 121 1179

In the treatment of bone neoplasms the tendency is toward conservatism. Disagreement is due to the comparative infrequency of such tumors failure to correlate the X ray findings with the clinical and laboratory data and the use of misleading terms. The term central giant-cell sarcoma is misleading because the growth to which it is applied is a benign giant cell tumor. The term myeloma should not be employed to designate the disease mollities ossium because the latter is a constitutional marrow condition. Instead of giant cell sarcoma we should use the term sarcoma with giant-cell infiltration. European writers refer to benign giant cell tumors as osteitis fibrosa.

Certain cell arrangements exhibit dissimilar tendencies in different locations. For example Bloodgood has demonstrated that myxomatous tissue found in neoplasms of the long pipe bones indicates a high degree of malignancy whereas this is not the case when the tissue is found in the phalanges of the feet or the hands.

Doubtful cases should be treated for syphilis even when the Wassermann test is negative. An X ray examination on should be made of the lungs. Bone hyperplasias are more apt to be benign than malignant. Irritation of the capsule of a central growth is suggestive but not diagnostic of malignancy. Spontaneous fracture is highly suggestive of bone neoplasms. When it occurs before the fifteenth year of age it is almost pathognomonic of benign cyst. After the age of 15 years the possibility of malignancy increases.

Lesions beginning on the cartilaginous surfaces of the joints are nearly always inflammatory tuberculous or syphilitic. Systematic X ray examination and treatments should always follow the removal of a bone tumor whether it is malignant or benign.

Giant cell tumors usually develop after trauma occur usually between the ages of 20 and 30 years and as a rule are central and locate near an epiphysis. They seldom form metastases.

The giant cell tumor is friable pinkish to redish in color and easily broken up with a curette. In its early stages it contains no bone formation. Microscopic examination shows giant cells united to phagocytic leucocytes. The giant cells found in malignant growths have polylobular nuclei while those in benign growths show mitotic buds.

The treatment of giant-cell tumor consists in free opening and thorough curetting cauterization of the cavity with pure phenol or the actual cautery crush-

ing in of the shell if feasible treatment of the remaining cavity by the open method and roentgen ray or radium irradiation. If a recurrence of the growth develops the curettement should be repeated. In cases of repeated recurrence resection is indicated.

DANIEL H. LEVINTHAL, M.D.

Fly L. W. : The Second Great Type of Chronic Arthritis *J Am M A* 1923 121 176

In this article Fly summarizes the results of his investigations regarding the nature of the condition known as osteo-arthritis arthritis deformans degenerative arthritis hypertrophic arthritis senile arthritis and chronic rheumatism. He believes the cause is some form of non bacterial organism probably a protozoan from the gastrointestinal tract which gains access to the system through foci of osteomyelitis about the roots of the teeth and causes an aseptic necrosis in the marrow in the region of the joints.

Rest heat and proper diet usually cause the symptoms to subside but the disease itself is best treated by the removal of dead teeth and the eradication of intestinal parasites. The search for parasites should be conducted by a skilled parasitologist. Wyckoff working in collaboration with Fly found protozoa in the stools in fourteen of the sixty six cases.

CHESTER C. SCHNEIDER, M.D.

Hilmond R. : Relaxation of the Shoulder Following Bone Injury *J Bone & Jt Surg* 1923 5 712

The author reports three cases of fracture of the upper end of the humerus in which the weight of the swollen arm caused exhaustion of the shoulder muscles. The deltoid was chiefly affected. Downward subluxation of the head of the humerus resulted. This subluxation may be without symptoms.

In the diagnosis an X ray examination may be a hindrance instead of a help unless the findings are carefully checked by clinical study as the apparent position of the head is dependent upon the angle of the ray.

When the subluxation is mild it takes care of itself. The shoulder recovers normal function in the usual length of time.

As this condition tends to occur following injury to the shoulder the use of heavy apparatus should be avoided.

ROBERT V. FURSTEN, M.D.

Gleland M. : Suppurative Tenosynovitis of the Flexor Muscle of the Hand *A A S* 1923 9 3

This article reviews fifty seven consecutive cases of acute infections and gives the end results after an average time of one and one half years.

The infections are classified as primary or due to direct implantation of the organisms at the time of injury and secondary or due to extension to the tendon sheath from the surrounding tissues. In cases of primary infection a good result may be obtained if thorough drainage is instituted early. Secondary infection is frequently slow in developing and diagnosed late consequently the prognosis is less favorable.

Trauma is usually a factor but sometimes as in cases of gonorrhea no injury is mentioned in the history. Puncture wounds are the most common and in two thirds of the cases reviewed a foreign body was present. It was interesting to note that all of the thirteen cases of primary infection showed a wound at the distal flexion crease. This was not true of the cases of secondary infection.

The cases of primary infection came to operation on an average three days and sixteen hours after the injury while those of the secondary type were operated upon after about fifteen days. Every hour of delay lessens the chance of a good end result. In one case of primary infection the condition was well developed seven hours after injury. The most common organism is the hemolytic streptococcus.

After the operation the author places the hand and forearm in sterile towels. After the bleeding has stopped the hand is soaked in warm (110 degrees) sterile boric acid solution for from twenty four to forty eight hours when all rubber dam drains are removed. Sterile towels are then applied again and intermittent soaking is begun. It is very important to avoid secondary contamination as such cases do not progress favorably. Very early active motion is encouraged. After the soaking the wounds are irrigated with a surgical solution of chlorinated soda by means of a pipette. Four or five days after the operation baking is begun.

To decrease the chance of secondary infection the patient should be kept in the hospital until the wound is almost if not entirely healed.

ROBERT V. FUNSTEN M.D.

Kanavel A. B. Tuberculous Tenosynovitis of the Hand. A Report of Fourteen Cases of Tuberculous Tenosynovitis. *S. g. Gynec & Obst.* 9:3 221 635

It is important to recognize the condition before fragmentation has taken place in the tendons as the chance of recovering normal function is materially lessened by this process.

The patients whose cases are reported ranged in age from 10 to 60 years. A history of trauma or pulmonary involvement was not constant.

The disease appears in various forms. There may be a simple serous exudate or granulation tissue and rice body formation. Later the fungoid and destructive types may be seen. The deep fascia is more tense than normal and the superficial tissues are oedematous. The tendon sheaths are no longer white and glistening but yellowish grayish or purplish and thickened. The involved tendons

with their sheaths present a fusiform enlargement. During this stage careful dissection will show that the tendon has not yet become involved in the tuberculous process.

Later the sheath is replaced by caseous and fibrous tissue and fragmentation occurs. All of the tendons in certain groups may become masses of fibrous tissue. The palmar involvement follows strictly anatomical lines if it begins in the little finger the thumb is almost certain to be affected.

Although fragmentation occurred in six of the fourteen cases the tendons of more than one finger were destroyed in only one. When the process is in the palmar radial and ulnar bursae the median nerve is usually involved but rarely destroyed.

The tenosynovitis as a rule develops slowly causing stiffness of the hand and swelling. Occasionally severe pain is caused by median nerve pressure. With the development of symptoms there is loss of function. At certain stages of the disease crepitation may be felt. In neglected cases bone and joint involvement and fistula formation may occur.

If the tenosynovitis is not accompanied by tuberculous lesions elsewhere there is a possibility of complete cure. Conservative treatment consists of immobilization in the very early stages or removal of the melen seeds and the injection of iodiform emulsion. Such treatment is slow.

The author advocates careful resection of all tuberculous tissue. He does this under local anesthesia induced by blocking the brachial plexus with 1 per cent novocaine injected above the clavicle. This is sometimes supplemented by infiltration of the ulnar nerve at the elbow and of the median nerve in the incision. In order that the field may be bloodless constriction is maintained with a blood pressure apparatus the point being kept twenty above the systolic. Greatly diseased tendons are resected and the remaining portions attached to their unaffected neighbors. Care is taken to avoid damage to small blood vessels and nerves. Better recovery of function follows this treatment if the member is not immobilized. The patient is instructed to use the hand for light work as soon as the wound is healed.

ROBERT V. FUNSTEN M.D.

Colvin A. R. Some Disabilities of the Knee Joint. *S. g. Clin. A. Am.* 9:3 11 1327

The author reports cases representing various types of internal derangement of the knee joint.

Symptoms of loose body in the joint dislocated semilunar cartilage and injury to the infrapatellar fat pad are so similar that their differentiation is sometimes very difficult.

In all except one of a number of cases of osteochondritis dissecans the symptoms had been present for a number of years. In the one exceptional case the joint had become locked following a sudden injury sustained three weeks before the author was consulted.

In osteochondritis dissecans the symptoms are very similar to those of villous arthritis or early

arthritis deformans with intermittent swelling and limitation of motion. The X-ray will usually demonstrate the loose body and a defect in the articular surface of the joint. The treatment consists of the removal of the loose body through a minimal parastellar incision.

In two cases of injury to the semilunar cartilage which are a cause of a history of trauma was given. In the first the cartilage was torn from its coronal attachment except at its two ends and its free edge presented extension of the joint. In the second case a small round mass of body which could be felt on the mesial side of the joint proved to be a section of the anterior half of the internal semilunar which had been torn from its coronal attachment and slipped into a synovial mass the size of a pea.

In another case reported a fringe of hypertrophic fat almost 1 cm long hung from the infrapatellar fat pad and caused symptoms very similar to those of injury to the semilunar cartilage.

LEE AND KEMP, M.D.

#### SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Classification: Research on Bone Graft. Fixed in Alcohol and the Mechanism of Osteogenesis (Kocher's autolytic grafts and the autolytic grafts of the mechanism of osteogenesis). A. J. W. 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 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into a host as in the previous experiments. There was no local or general reaction and the roentgenograms showed that the graft remained in place. Four months and twenty days later the intact graft was removed. It showed no evidence of absorption and was adherent at one end only. At this extremity there was no microscopic evidence of osteoblastic activity.

Grafts of dog and rabbit bone were introduced also into the chest and back of dogs. After four months and four days when these grafts were removed it was found that the piece of rib fixed in alcohol and implanted subperiosteally had been completely absorbed. Living rib transplanted showed abundant callus but not firm union. A piece of rib completely denuded of its periosteum and fixed in alcohol had fractured at the site of the wire holes as the result of rarefying osteitis.

The conclusions drawn from these experiments are as follows:

1. Dead rabbit bone becomes almost completely absorbed.
2. Autogenous grafts with periosteum become almost completely absorbed.
3. Autogenous grafts without periosteum completely disappear.
4. Dead dog bone disappears.
5. Living rabbit bone enlarges considerably and becomes adherent to neighboring tissues.

The study therefore indicated that only a living heterogeneous graft resulted in bone formation as the animal absorbed even its own living grafts. Accordingly the author concludes that the life death homogenesis and heterogenesis of the graft are of only secondary importance. The operative technique, the character of the tissues into which transplantation is made, the blood supply, and the function of the surrounding muscles are factors of great importance.

The author's study of the mechanism of absorption of certain grafts after histologic study of numerous specimens led him to conclude that in the majority of cases the terminal portions of fragments which enter into the field of a fracture die, i.e., the osteoblasts die and the compact bony substance becomes absorbed. Calcareous salts are taken up by the blood plasma. At the same time the process of callus formation begins with cell regeneration between the fracture ends. By the fifth day this new tissue shows osseous substance which gradually takes on the form of amorphous spots staining feebly with eosin. These are likened to small depots where osseous substance is precipitated. This substance includes fibroblasts which later become osteoblasts. The cells seem to be attracted to the early precipitation of osseous tissue possibly by chemotaxis. They gather around the blocks of bone and form a sort of crown. As the process continues they become imprisoned in the compact substance. On the periosteal side a similar process occurs.

A second case reported was that of a 24-year-old man whose left ulna was injured by a piece of shell

in September 1918. The wound healed after debridement. Eleven months later 11 cm. of ulna which had been fixed in 95 per cent alcohol for forty days was transplanted into the bony defect. Eight months later the graft had healed firmly into place.

A third case was that of a 14-year-old boy with pseudarthrosis of the left radius following a shell injury. A year after the injury a portion of the radius was excised and the defect filled with bone which had been taken from a dead soldier eighteen months previously and fixed in 60 per cent alcohol. This transplanted radius was of greater diameter than the boy's radius. After two months callus was found thrown out around the embedded end of the transplant and a good mechanical result was obtained.

The following clinical conclusions are made:

1. The use of bone grafts fixed in alcohol renders unnecessary the trauma of taking living bone transplants.

2. Physiological function returns promptly if the transplant is firmly fixed. Early return to work is favored and muscle atrophy is prevented.

The dovetailing of fragments is advocated for fixation in order that the use of metallic sutures may be avoided. A careful aseptic and hemostatic technique is essential to success.

The author discusses the change in the dead transplant from the chemical point of view, stating that all parts except the connective tissue and the elastic fibers undergo disintegration and absorption. The transplant contains (1) calcium salts, (2) proteids, (3) nucleoproteids, (4) fats and fatty acids, (5) lecithin, (6) lactic acid, and (7) alcohol.

Wells is quoted as stating that all calcium necessary for new bone formation comes from the blood or is held in suspension by the proteins, probably as calcium ion protein. This calcium suspension is unstable and may be precipitated by such factors as changes in the alkalinity or carbon dioxide content of the blood.

Four hypotheses are advanced to explain the chemical mechanism of osteogenesis:

1. The proteins are so completely used that calcium can no longer be held in solution.
2. An increase in the alkalinity of the blood occurs with a change in the carbon dioxide and the precipitation of inorganic salts.
3. The phosphoric acid and blood calcium become combined.
4. The calcium salts are absorbed by some previously precipitated product.

The article is supplemented with a bibliography.  
KELLOGG SPEED, M.D.

Wheeler, Sir W. I. d. C. Contribution to the Discussion on Arthroplasty. *Med. Press* 1923, N. S. C. 1, 319.

Whether arthroplasty, arthrodesis, or excision should be used depends upon the requirements of the particular case. Wheeler questions the advantage of arthroplasty of the shoulder over carefully performed

excision or fixation in the position of election. An arthroplasty of the elbow carefully done makes a stronger joint than excision but fixation in good position is often satisfactory.

In the knee joint arthroplasty is seldom indicated. In the hip joint in the few cases in which mobilization is indicated the Murphy method of arthroplasty is superior to excision.

JOHN W. POWER, M.D.

Gessner H. B. Arthroplasty. *A. O. A. S. U. & S. J.* 1923 I. XVI. 24.

The author reports on nine arthroplasties. Two performed on the jaws and three on the elbow gave excellent results and one performed on the elbow gave a good result. The three others were followed by sufficient improvement to justify the procedure. There were no deaths. JOHN W. POWERS, M.D.

Mueller W. The Typical Roentgen Ray Picture of Osteochondritis Deformans Coxae Juvenilis Taken with the Hip Flexed and Abducted (U. be e. en t y p s h. Roentg. n b. fu d d. Ost. o. ch. ndr. it. d. f. m. n. s. co. a. ju. en. h. s. bei. A. f. ah. men. m. geb. ugt. e. abduz. t. n. ilu. str. le. k.) *Forts. h. o. d. G. b. d. R.* 1923 X. 335.

For the diagnosis of hip disease Mueller recommends anteroposterior raying of the patient in the supine position with the hip joint flexed at a right angle and abducted to the maximum. This shows the femoral head and neck in a horizontal plane through the femoral neck.

In five cases of recent osteochondritis deformans coxae juvenilis erosion of the upper half of the femoral head and neck was found while the other parts were relatively normal. When the femur is extended this location corresponds to the anterior quadrant and this position explains the light portions seen in the ordinary plates which are due to deficiency in the anterior parts of the bones.

MEYER (Z).

Wheeler Sir W. J. de C. Amputations with Special Reference to the Sleeve Amputation of the Thigh in Severe Injury and Disease. *Pr. 11.* 1923. 309.

The author points out that the experience of the war made it obvious that many of the old ideas on amputation are fundamentally incorrect. Amputations about the foot are generally described and Symes amputation has been improved by dividing the tibia and fibula at a higher level.

Most surgeons and limb makers agree that amputation through the knee joint is undesirable.

Amputation at the hip is done best when skin flaps are formed and the muscles are cut very short. The head of the femur is left to fill up the acetabulum. The soft parts should be cut so that they can not push the artificial limb off the tuber ischii.

Amputations in the lower limb which are still being performed include (1) amputation of the toes (2) Symes amputation (3) amputation

through the leg with the formation of skin flaps (4) amputation of the thigh with the formation of long anterior and short posterior flaps and (5) amputation through the neck of the femur with the formation of skin flaps.

Amputations in the upper limb which are still in use are (1) amputation of the fingers (2) amputation of the forearm with the formation of equal skin flaps (3) circular amputation of the upper arm and (4) Spencer's amputation of the shoulder.

Three cases are reported to illustrate the sleeve amputation, a method designed to meet certain emergency conditions with the least surgical risk and to conserve the longest possible stump. The amputation being performed below the fracture and the distal fragment of the fractured bone being removed. It is usually better to leave the sleeve completely open for drainage and contraction as this will save considerable time. The operation is equally applicable to the upper and lower limbs.

In conclusion the author recommends the amputation of the leg recommended by Orr. The site of election in this operation is the middle third. Long anterior and short posterior skin flaps are formed. The perosteum at the cut ends is removed and the marrow cooped out. The nerves are drawn out of the stump as far as possible, injected with alcohol and then divided just below the point of injection.

When it is necessary to remove the leg at a higher level it is of advantage to remove the fibula entire. DAVIS, W. C. II. M.D.

Perthes G. Curvilinear Osteotomy of the Tibia in Genu Valgum and Genu Varum (Ueb. r. bog. foermig. Osteot. m. d. Tib. bc. G. u. lg. m. d. G. n. s. um.) *Z. n. t. l. f. Chir.* 1923. 183.

The author recommends a new method of operation which he claims has advantages over MacEwen's supracondylar osteotomy. The bones of the leg are given a new shape which more closely approximates the normal than that following MacEwen's operation. Consequently free mobility of the knee joint and normal function on return much soon. The technique is as follows:

A curvilinear osteotomy is done at the upper end of the tibia in the line with its concavity above being made transversely at the level of the tibial tuberosity. The patellar ligament is cut through at its insertion so that one part above and one below still remains attached to the bone. A new pattern is then applied so that its long axis coincides with the axis of the femur. The axes of the tibia and patella then form an angle which equals the correct normal and the center of the arc lies in the middle of the knee joint. A McEwen chisel (2 mm or less broad) is then applied vertically to the axis of the tibia with its edge in the direction of the arc and the line in which the bone is to be cut is first lightly marked following the curve of the pattern. If the chisel becomes fixed it is freed by driving in a second chisel beside it.

When the chisel is close to the posterior wall of the tibia (in 18 year old patients about 4 cm deep) the tibia is broken apart and the gap is opened widely. To do this the sole of the foot is placed on the operating table with the leg bent at the knee and an assistant presses his fist in the hollow of the knee. The fibula is left attached to the lower part of the tibia but is forced apart from the upper condyle. Concavity and convexity are then modelled and adapted so that there is perfect correction and no springing back. Somewhat more bone is removed on the inner half of the lower part of the tibia than on the outer half. The fitting is done with the help of the pattern. The patellar ligament fascia and periosteum are united with silk suture. The skin is then sutured and a plaster cast is applied which includes the foot and extend to the tuber ischi.

The Schanz mummy cast for both legs has been found of advantage. The cast is left on for from ten to fourteen days. After from four to four and one half weeks there is usually free movement. After five weeks the patient may get up and at the end of seven weeks he is able to walk without a cane.

In a period of one and one half years Perthes has operated successfully upon seventeen cases—thirteen of genu valgum and four of genu varum.

GLASS (Z)

## FRACTURES AND DISLOCATIONS

Conwell H E Compound Fractures of Long Bones *J Am Med Ass* 1923 lx vi 1604

In reporting on seventy five cases of compound fracture of the long bones Conwell states that even fair function is better than the use of an artificial appliance.

The average length of time spent in the hospital by his patients was forty seven days in twelve cases of fracture of the femur, forty nine days in forty four cases of fracture of the tibia and fibula, twenty nine days in eight cases of fracture of the humerus and thirty five days in eleven cases of fracture of the radius and ulna.

In 80 per cent of the cases the fracture was in the lower third of the bone and in a large percentage there was involvement of neighboring joints. In almost 70 per cent considerable destruction of soft parts had occurred and in 90 per cent the fracture was comminuted. In more than 25 per cent there was considerable doubt as to the advisability of amputation.

The average number of days lost from work was 163 in cases of fracture of the femur, 201 in cases of fracture of the tibia and fibula, 121 in cases of fracture of the radius and ulna and 97 in cases of fracture of the humerus.

Thorough debridement is done by the author routinely with care not to remove bone with periosteum attached. Small pieces of bone which seem useless will often unite later and help in the formation of callus. It is better to risk the necessity for a

later sequestrectomy than to sacrifice bone needlessly. Delay in bone union and healing is more often caused by traumatized soft parts left at operation than by the presence of poorly attached bone fragments.

After the wound has been cleansed and the traumatized soft parts have been excised the bone fragments are carefully approximated by suture of the periosteum with chromic catgut or with kangaroo tendon.

When the operation has been completed a molded plaster splint is applied in cases of fracture of the leg or forearm and a Thomas splint in cases of fracture of the femur or humerus. The use of the Balkan frame being combined with proper traction.

To determine the progress of union roentgenograms are made at frequent interval with the portable roentgen ray machine. When sufficient callus has formed the plaster splint is removed and active and passive motion, massage and hot baths are instituted.

In more than 90 per cent of these cases the Wassermann test was positive on the date of the injury but negative ten days later.

Frequent inspection, perseverance and patience in the treatment are essential for good results. The proper handling of a compound fracture is a much more difficult procedure than many so called major operations.

DENNIS W CRILE M D

Hertel Calcaneum Nail Extension with the Foot in Supination (Claus Nagel's extension on unter Supinationstellung der Fuß) *Beitr z klin Ch* 1933 c 476

The perforating Steinmann nail is not driven through the calcaneum perpendicularly to the axis of the lower leg. In eversion fractures the outer nail is driven through higher and closer to the external malleolus and the inner one lower and closer to the plantar surface. When the foot is at rest the nail is oblique to the axis of the leg. When traction is applied it is perpendicular to it and turns the foot to the desired position. In twelve cases of fracture treated in this manner the functional results were excellent.

SCHMIDT (Z)

Ashhurst A P C and Crossan E T The Prognosis and Treatment of Fractures of the Leg and Ankle. The End Results in 100 Patients *Arch Surg* 1923 61

A good anatomical result was obtained in eighty one of the 100 cases reviewed. In sixty seven of these the functional result was good in thirteen, fairly good and in one poor. Of seventeen cases in which the anatomical result was moderately good the functional result was good in five and moderately good in twelve. Of two cases in which the anatomical result was poor the functional result was moderately good in one and poor in the other.

Simple fractures were treated with the pillow splint in the fracture box, the skin being first carefully cleansed to prevent the infection of any bullae.

that might develop. Gross displacements were corrected and X ray examinations were made to guide correction. Good anatomical correction was obtained in 77 per cent of the cases of simple leg fractures in 91 per cent of these the functional result was good. Of the cases of fracture of the ankle a good anatomical result was obtained in 86 per cent and a good functional result in 74 per cent of these.

The leg was kept in the fracture box sufficiently long for the subsidence of the edema. On its removal Stimson molded gypsum splints were applied. These are three splints made of plaster of Paris. The first extends from above the knee under the calf and heel along the sole of the foot to the toes. The second is applied with one end on the dorsum of the foot around the outer border across the sole and up the inner side to the mid thigh. The third covers the dorsum of the foot the sole and the outer side of the leg and knee and is fixed in place with a bandage. The patient walks with crutches and when union is apparent he is encouraged to bear a little weight on the limb one splint after another being discarded as he recovers. The splints may be removed for physiotherapy.

In cases with marked displacement correction is effected under anesthesia. In cases with overriding Steinmann pin traction through the calcaneum or Buck's extension were employed to advantage.

In ten cases of leg fracture Delbet's gypsum apparatus was employed. This consists of two lateral plaster splints extending from a point just below the level of the knee joint to 1 cm. of the sole of the foot at the heel which are applied with the leg in traction and secured by circular bands below the knee and above the ankle. The advantage of

these splints is that they make it possible for the patient to get up out of bed after the first week or ten days the foot being placed on the floor and compel him to exercise the knee and ankle. Function hastens bone repair and therefore shortens the period of disability. In the cases reviewed the period of disability due to simple fractures was three and eight tenths months and that due to compound fractures five and one half months. The former is one month less and the latter six weeks less than that shown by the statistics of the American Surgical Association.

The cases reviewed included fifteen of compound fractures fourteen of the shaft and one of the ankle joint. Those with small skin wounds were treated as simple fractures after cleansing of the wound. Operative treatment if any was delayed for a week or ten days after the injury. In two cases with extensive wounds of the soft parts debridement was done. In the first of these in which the ankle joint was involved Steinmann traction was employed following the unsuccessful application of a plate. The anatomical result was good and the functional result moderately good. In the second case a case of fracture of the tibia and the fibula a removable clamp was used. The anatomical and functional results were moderately good.

Sixteen patients received operative treatment and fourteen of these have been traced. Of nine cases in which plating was done removal of the plates was necessary in only one. Of six cases in which screw fixation was employed the screw was removed in one. Anatomical correction was obtained in 78 per cent and moderate reduction in three.

RUDOLPH S. REICH, M.D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Foix C and Masson A The Syndrome of the Posterior Cerebral Artery (Le syndrome d'artère cérébrale postérieure) *P méd Par* 1923 361

Obliteration of the posterior cerebral artery is of clinical importance especially because of the complexity of the anatomical areas this vessel supplies namely the peduncular regions and the inferior surface of the occipitotemporal lobe For the same reason the symptoms are variable

Lesions of this artery may occur at any point between the origin and distribution of the vessel and even minute lesions may cause grave symptoms The artery has a superficial and a deep distribution The superficial includes the inferior surface of the brain all of the temporo occipital lobe except its anterior extremity a branch of the Sylvian fissure a branch to the external surface of the third and some times a branch to the second temporal convolution and the lower half of the occipital lobe the internal surface of the temporo occipital convolution part of the convolution of the hippocampus and all of the cuneus The deep distribution comprises the greater half of the postero inferior surface of the optic thalamus

Complete lesions of this artery are rare and it is seldom obliterated at its origin It anastomoses by the posterior communicating branch with the circle of Willis Its peripheral anastomoses with neighboring arteries are so numerous that it may be regarded as a terminal artery only in part Consequently even extensive lesions of the vessel are subtotal in their effects the peduncular area is usually excluded and there are many partial syndromes from lesions of this artery

The syndrome of the artery is clinico anatomically divided into two types the posterior temporo occipital and the anterior or thalamo subthalamic The posterior is characterized by hemianopsia with or without alexia the anterior by variable thalamic or cerebellar symptoms up to complete hemiparesis On the left side the predominant symptoms are the alexia and the minor troubles associated with it while on the right side according to the predominance of one or the other groups of symptoms it is considered as a thalamic lesion or hemianopsia

Two cases are reported One came to autopsy The partial syndromes are described briefly

KELLOGG SPEED M D

Lucke B and Rea M H Aneurisms *J Am M A* 1923 1 1 67

The distribution of 263 aneurisms of the aorta studied post mortem at the Philadelphia General Hos

pital and the Hospital of the University of Pennsylvania was as follows

Sixty two involved the ascending arch twenty three the junction of the ascending and transverse arch forty six the transverse arch forty two the descending arch and nineteen the entire arch thirty one the thoracic aorta and forty the abdominal aorta

The following generalizations have reference only to the behavior of the majority of the aneurisms and indicate the conditions most frequently encountered

1 Aneurisms of the ascending arch are of relatively small size they arise most frequently in the lower portion of the vessel extending to the right and anteriorly They become adherent to or compress or erode the neighboring great vessels the respiratory structures the ribs the right clavicle and the sternum Rupture occurs most commonly into the pericardium or the respiratory organs

2 A considerable number of aneurisms are located at the junction of the ascending and transverse arch They attain considerable size extend commonly to the right affect especially the neighboring vessels nerves and respiratory organs and rupture into the respiratory organs

3 In the transverse arch aneurisms often attain large size they arise near the orifices of the great vessels and extend with equal frequency anteriorly or posteriorly They commonly affect the sternum and the ribs compress the trachea and œsophagus and rupture into these structures or into the pleural cavities External rupture is uncommon

4 The aneurisms of the descending arch are located most commonly near the junction with the transverse arch Their extension is mainly posterior and to the left They frequently involve the œsophagus and the left respiratory organs many cause erosion of the vertebrae and ribs Rupture takes place especially into the left respiratory organs and the œsophagus

5 Aneurisms involving the entire arch are usually large saccular or fusiform dilatations which extend both anteriorly and posteriorly The sternum vertebrae and ribs are the structures eroded

6 In the thoracic aorta the aneurisms are commonly large and extend posteriorly and to the left eroding the vertebrae and ribs and rupturing into the left pleura and the lung Rupture into the abdominal cavity also occurs

7 In the abdominal aorta aneurisms may attain very large size They are located chiefly just below the diaphragm at or near the coeliac axis or above the bifurcation They extend with equal frequency posteriorly or anteriorly and commonly erode the vertebrae Rupture takes place with equal fre



that might develop. Gross displacements were corrected and X-ray examinations were made to guide correction. Good anatomical correction was obtained in 77 per cent of the cases of simple leg fractures, in 91 per cent of these the functional result was good. Of the cases of fracture of the ankle a good anatomical result was obtained in 86 per cent and a good functional result in 74 per cent of these.

The leg was kept in the fracture box sufficiently long for the subsidence of the edema. On its removal Stimson molded gypsum splints were applied. These are three splints made of plaster of Paris. The first extends from above the knee under the calf and heel along the sole of the foot to the toes. The second is applied with one end on the dorsum of the foot around the outer border across the sole and up the inner side to the mid thigh. The third covers the dorsum of the foot, the sole and the outer side of the leg and knee and is fixed in place with a bandage. The patient walks with crutches and when union is apparent he is encouraged to bear a little weight on the limb, one splint after another being discarded as he recovers. The splints may be removed for physiotherapy.

In cases with marked displacement correction is effected under anesthesia. In cases with overriding Steinmann pin traction through the calcaneum or Buck's extension were employed to advantage.

In ten cases of leg fracture Delbet's gypsum apparatus was employed. This consists of two lateral plaster splints extending from a point just below the level of the knee joint to 1 cm. of the sole of the foot at the heel which are applied with the leg in traction and secured by circular bands below the knee and above the ankle. The advantage of

these splints is that they make it possible for the patient to get up out of bed after the first week or ten days, the foot being placed on the floor and compel him to exercise the knee and ankle. Function hastens bone repair and therefore shortens the period of disability. In the cases reviewed the period of disability due to simple fractures was three and eight tenths months and that due to compound fractures five and one half months. The former is one month less and the latter six weeks less than that shown by the statistics of the American Surgical Association.

The cases reviewed included fifteen of compound fractures, fourteen of the shaft and one of the ankle joint. Those with small skin wounds were treated as simple fractures after cleansing of the wound. Operative treatment if any was delayed for a week or ten days after the injury. In two cases with extensive wounds of the soft parts debridement was done. In the first of these in which the ankle joint was involved Steinmann traction was employed following the unsuccessful application of a plate. The anatomical result was good and the functional result moderately good. In the second case a case of fracture of the tibia and the fibula a removable clamp was used. The anatomical and functional results were moderately good.

Sixteen patients received operative treatment and fourteen of these have been traced. Of nine cases in which plating was done removal of the plates was necessary in only one. Of six cases in which screw fixation was employed the screw was removed in one. Anatomical correction was obtained in 78 per cent and moderate reduction in three.

REIDOLF S. REICHERT

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

Foix C and Masson A. The Syndrome of the Posterior Cerebral Artery (Le syndrome d'artère cérébrale postérieure) *Presse méd* Paris 1923 xx 36

Obliteration of the posterior cerebral artery is of clinical importance especially because of the complexity of the anatomical areas this vessel supplies namely the peduncular regions and the inferior surface of the occipitotemporal lobe. For the same reason the symptoms are variable.

Lesions of this artery may occur at any point between the origin and distribution of the vessel and even minute lesions may cause grave symptoms. The artery has a superficial and a deep distribution. The superficial includes the inferior surface of the brain, all of the temporo-occipital lobe except its anterior extremity, a branch of the Sylvian fissure, a branch to the external surface of the third and sometimes a branch to the second temporal convolution and the lower half of the occipital lobe. The internal surface of the temporo-occipital convolution, part of the convolution of the hippocampus and all of the cuneus. The deep distribution comprises the greater half of the postero-inferior surface of the optic thalamus.

Complete lesions of this artery are rare and it is seldom obliterated at its origin. It anastomoses with the posterior communicating branch with the circle of Willis. Its peripheral anastomoses with neighboring arteries are so numerous that it may be regarded as a terminal artery only in part. Consequently even extensive lesions of the vessel are subtotal in their effects; the peduncular area is usually excluded and there are many partial syndromes from lesions of this artery.

The syndrome of the artery is clinically anatomically divided into two types: the posterior temporo-occipital and the anterior or thalamo-subthalamo. The posterior is characterized by hemianopsia with or without alexia, the anterior by variable thalamo- or cerebellothalamic symptoms up to complete hemiparesis. On the left side the predominant symptoms are the alexia and the minor troubles associated with it; while on the right side according to the predominance of one or the other groups of symptoms it is considered as a thalamo-lesion or hemianopsia.

Two cases are reported. One came to autopsy. The partial syndromes are described briefly.

KELLOGG SPEED M D

Lucke B and Rea M H. Aneurysms. *J Am Med Ass* 1923 l x 167

The distribution of 263 aneurysms of the aorta studied post mortem at the Philadelphia General Hos-

pital and the Hospital of the University of Pennsylvania was as follows:

Sixty two involved the ascending arch, twenty three the juncture of the ascending and transverse arch, forty six the transverse arch, forty two the descending arch and nineteen the entire arch, thirty one the thoracic aorta and forty the abdominal aorta.

The following generalizations have reference only to the behavior of the majority of the aneurysms and indicate the conditions most frequently encountered:

1. Aneurysms of the ascending arch are of relatively small size; they arise most frequently in the lower portion of the vessel extending to the right and anteriorly. They become adherent to or compress or erode the neighboring great vessels, the respiratory structures, the ribs, the right clavicle and the sternum. Rupture occurs most commonly into the pericardium or the respiratory organs.

2. A considerable number of aneurysms are located at the juncture of the ascending and transverse arch. They attain considerable size, extend commonly to the right, affect especially the neighboring vessels, nerves and respiratory organs and rupture into the respiratory organs.

3. In the transverse arch aneurysms often attain large size; they arise near the orifices of the great vessels and extend with equal frequency anteriorly or posteriorly. They commonly affect the sternum and the ribs, compress the trachea and oesophagus and rupture into these structures or into the pleural cavities. External rupture is uncommon.

4. The aneurysms of the descending arch are located most commonly near the juncture with the transverse arch. Their extension is mainly posterior and to the left. They frequently involve the oesophagus and the left respiratory organs, many cause erosion of the vertebrae and ribs. Rupture takes place especially into the left respiratory organs and the oesophagus.

5. Aneurysms involving the entire arch are usually large, saccular or fusiform dilatations which extend both anteriorly and posteriorly. The sternum, vertebrae and ribs are the structures eroded.

6. In the thoracic aorta the aneurysms are commonly large and extend posteriorly and to the left, eroding the vertebrae and ribs and rupturing into the left pleura and the lung. Rupture into the abdominal cavity also occurs.

7. In the abdominal aorta aneurysms may attain very large size. They are located chiefly just below the diaphragm, at or near the coeliac axis or above the bifurcation. They extend with equal frequency posteriorly or anteriorly and commonly erode the vertebrae. Rupture takes place with equal fre-

quency into the abdominal cavity the pleural cavities and the retroperitoneal tissues

5 In the series of cases reviewed the location of the aneurism corresponded to the so-called points of election along the spiral line of impact described by Rindfleisch in only about 50 per cent and many of the aneurisms did not conform in their direction to Rindfleisch's rules

Morrow H and Tausig L R Radium Therapy of Vascular Nevus *Am J R 12* 1923 86

One of the most striking effects of radium is the production of obliterative endarteritis. This was made use of in the very early treatment of nevi. Since these lesions are treated solely for cosmetic reasons incomplete removal seems preferable to the substitution of an ugly scar. When the very best results are obtained the lesion is scarcely noticeable but there is always some atrophy and even when the utmost skill is used telangiectases may occur. Usually the latter may be removed with the water-cooled mercury lamp. Beta rays are more efficient in removing such marks than the gamma rays. If the involvement is deep the hard beta rays are used and also the gamma rays.

Young children respond better than adults. True vascular nevi include the port wine mark, the strawberry mark and angioma cavernosum. The port wine stain varies in depth of color is usually homogeneous and is not raised above the surrounding area. A few radium therapists report excellent results in the treatment of these lesions but the majority advise against treating them. Radium plaques or tubes are the only forms suitable. No screening or only slight screening should be used. The ideal dose is just short of an erythema dose. The authors regard ultraviolet light as better than radium. X rays and gamma rays have no effect.

The strawberry mark or vascular nevus is raised above the skin and in rare cases may undergo spontaneous involution. The lesion is evenly colored and smooth should be given an exposure of from twenty to forty minutes with a quarter to half strength plaque screened with 0.1 mm of aluminum. Thicker nevi should be given an exposure of from one to one and one-half hours with a similar plaque screened with 0.3 mm of brass or its equivalent.

If the first two or three treatments cause no improvement subsequent treatments should be spread over a considerable period of time. Cavernous hemangiomas are usually circumscribed tumors. Frequently they are subcutaneous and usually they present a faint blue or violet color. These lesions are treated from one to two hours every four to six weeks with plaques of quarter to half strength screened with 0.3 mm of brass. Tubular applicators are used satisfactorily with proper screening and distance. Needing these lesions seems a radical procedure.

The author's conclusions are as follows:

1 Radium gives better results in vascular nevi than any other therapeutic agent.

2 The results are best in nevus vasculosus (strawberry mark) next best in cavernous nevi and least satisfactory in nevus flammeus (port wine mark).

3 Beta rays should be employed as much as possible.

4 Severe reactions are unjustifiable.

JAMES LARKIN, M.D.

## BLOOD AND TRANSFUSION

Lattes L True Agglutination and Pseudo-Agglutination in Blood Transfusion (*Eritologia* 1923 11 11) *Am J R 12* 1923 86

According to Eiden Vorschuetz and Diemer the four blood groups are not constant but may be changed by drugs such as quinine, calcium, pyrin and anesthetics by physical agents such as the roentgen ray and the galvanic current and by physiologic processes such as menstruation. Experimental data are not sufficient to warrant the assumption of a change of the blood groups, a transition from one to the other or the existence of a fifth group in which the serum agglutinates all corpuscles including its own.

Pseudo agglutination or nummulation has not been sufficiently distinguished from true agglutination. True agglutination is dependent upon heredity and cannot be influenced by illness or external influences. Nummulation sometimes erroneously called agglutination is influenced by external factors and sickness and is not a specific phenomenon. It is closely related to the sedimentation rate of the erythrocytes and subject to the same influences. If true agglutination is to be studied this must be done under conditions which exclude nummulation. Nummulation does not occur in a weak physiological salt solution.

TRIM (2)

Ruf H O and McCliland J E Intraperitoneal Transfusion in Infants (*Ohio St J M 19* 1923 30)

The first part of this article is devoted to a review of the literature of transfusion as a therapeutic measure.

The authors then report a series of experiments performed to determine:

1 The rapidity and completeness of the intraperitoneal absorption of autologous blood in guinea pigs.

2 The route and rapidity of absorption of autologous blood from the peritoneal cavity of dogs.

3 The route of absorption of heterologous blood from the peritoneal cavity of dogs.

4 The rate of absorption of whole, citrated and defibrinated blood from the peritoneal cavity of guinea pigs.

The conclusions drawn from the findings are as follows

- 1 Whole or defibrinated blood is rapidly absorbed from the peritoneal cavity
- 2 Much of this absorption takes place through the lymphatics which drain into the thoracic duct
- 3 Microscopic and macroscopic examinations reveal the presence of injected blood in the thoracic duct lymph in from eight to ten minutes
- 4 The rate of absorption of whole citrated and defibrinated blood shows no marked differences
- 5 The injection of whole blood which is the most simple causes no more reaction than the injection of modified blood and is therefore to be preferred

A number of case reports are included in the article  
CLAYTON F ANDREWS M D

Rothe E The Value of Blood Cell Sedimentation in Surgery (U b r d e W i t d e r Blutkoeperschen senkung n der Chirurg e) *Z i l l i f Ch* 923 1 1318

Cachexia injuries of the liver severe cyanosis and polyglobulism usually retard blood cell sedimentation but in rare instances hasten it A physiological acceleration of sedimentation occurs in the latter half of pregnancy and during menstruation Acceleration is found also in oligocythæmia (anæmia) and in conditions causing increased resorption of katabolic products such as inflammatory processes wounds fractures aseptic operations and malignant tumors

Sedimentation is particularly valuable in the diagnosis and prognosis of pulmonary tuberculosis as it indicates the degree of its activity Surgically it is of particular value in pathological bone conditions because by its help tuberculosis may be differentiated from osteochondritis Perthes disease and the formation of loose bodies in joints Cancer of the œsophagus may be differentiated from cardiospasm or diverticulum and possibly cholelithiasis may be differentiated from ulcer of the duodenum The simple ulcers as long as they do not perforate and give rise to a local peritonitis do not cause an acceleration of sedimentation

Above all the method allows the time of convalescence to be determined objectively (of value in neurasthenia) since the curve reacts much more delicately than does that of the temperature or the leucocytes and very often returns to normal only after weeks It gives a true picture of the severity of the infection and in syphilis is positive earlier and over a longer period of time than is the Wassermann reaction

Because of the simplicity of the technique and the decisiveness of the method it would be very desirable to make the test relatively specific like the Wassermann reaction The electrical-charge theory of Hoeber is entirely superfluous for the explanation of the phenomenon The rapidity of sedimentation is probably chiefly a measure of the reciprocal action between the surface tension of the blood corpuscles and the plasma  
TOULKEN (Z)

## LYMPH VESSELS AND GLANDS

Whitaker L R Malignant Lymphoma (Hodgkin's Disease) A Radiographic Study 1 *ch Int Med* 1923 xxvii 538

The study of Hodgkin's disease reported was based on forty cases examined roentgenographically at the Massachusetts General Hospital and seven cases in which an autopsy was performed

The chest is the best field for roentgenographic examination in this disease because it is often involved and the low density of the lungs allows masses of lymphomatous tissue to show very distinctly The roentgenographic picture is characteristic differing from that of other forms of malignancy and tuberculosis

Whitaker reviews the literature and describes fully the X ray findings in Hodgkin's disease on the basis of the pathology discussing the various types of intrathoracic involvement and the differential diagnosis The article is well illustrated

The roentgen ray therapeutic test a method of differentiating Hodgkin's disease from other conditions especially carcinoma and tuberculosis is one of the most useful methods in the diagnosis Blankenhorn regards it as almost diagnostic A rapid and marked reduction in the size of the lymphoma is demonstrable in the roentgenogram after one or two treatments especially if the condition is in the early stages before there is marked fibrosis in the affected nodes

Whitaker's conclusions are as follows

- 1 The roentgen ray is of aid in the diagnosis of Hodgkin's disease because the intrathoracic nodes are often involved and the roentgenographic picture is fairly characteristic

- 2 It is of special value in the rare cases in which the lymphomata are confined to the thorax and biopsy is impossible

- 3 Hodgkin's disease is indicated when the roentgenogram shows homogeneous roughly lobulated shadows in the mediastinal or hilus regions which shrink rapidly under roentgen ray treatment

- 4 The most important condition to differentiate from Hodgkin's disease is tuberculosis This differentiation is usually not difficult

EWEL C ROBITSHER M D

Aikins W H B The Use of Radium in the Treatment of the Leukæmias and Hodgkin's Disease 1 *m J Ro Ig* of 193 x 853

It has been shown that in animals as well as man the lymphocytes are the first to show the effect of X and radium rays but it is noted that in leukaemia they are destroyed a great deal more readily than in inflammatory conditions (Levin) More can be done with radium in splenic leukaemia than in any other fatal disease The patient improves immediately and regains his appetite sometimes his general condition is much better at the end of twenty four hours The blood picture changes rapidly and finally the spleen recedes

The author cites a case in which 2 750 mgm hr reduced the blood count by 190 000 in two days and reduced the spleen 2 in. in four days the patient was able to return to work at the end of one week and has been in good health for four months. Another patient who was treated five times in two years gained strength after each treatment except the last. Death occurred two years after the radium treatment was begun. In another case which is still under treatment the condition has been held in check for three years. The white count was reduced from 333 000 to 236 000 in five days and when the patient was last seen was 62 000. Radium has an extraordinarily rapid and powerful effect on this type of leukemia but unfortunately the improvement is not permanent.

Of the chronic types of leukemia the myelogenous responds best to radiation. In the author's cases large flat applicators well screened are placed over the spleen in preference to tubes and are left in place until an erythema is produced. From 2 500 to 4 000 mgm hr are given at a time and the intervals are varied according to the requirements of the particular case. A few patients had nausea vomiting and diarrhea but these symptoms ceased in a few days. Many cases of lymphatic leukemia are

benefited by radium but the enlarged glands are so scattered over the body that it is difficult to apply a sufficient dosage of gamma rays. As a rule the white count is markedly reduced, and frequently the glands return to their normal size. The spleen of Banti's disease is often reduced in size sufficiently to permit splenectomy.

Hodgkin's disease may be successfully treated with radium the size of the glands is reduced and the general condition is improved but there is little blood change. However the diagnosis of Hodgkin's disease is difficult and in cases so diagnosed autopsy sometimes reveals instead a small-cell sarcoma or lymphogranuloma. In a case diagnosed as Hodgkin's disease in 1911, radium treatment caused such a marked reduction of the enlarged cervical and axillary glands that in 1923 the patient was able to take out life insurance. Slight enlargement of the left cervical glands remains but the inguinal and axillary are not palpable. In another case the condition was held in check with radium the glands involved the cervical glands respond to treatment each time. Another case which was first treated in 1920 is now clinically cured. The condition had been present for five years and had recurred after surgical excision.

A. JAMES, M.D.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Kronrich F. The Re Sterilization of Catgut (Ueber Nachsterilisierung von Catgut) *Arch f kl n Ch* 1923 cx v 275

As a part of a large supply of catgut made during the war was found not sterile efforts were made to re sterilize it. The following three methods were tested

1 The Claudius method. The catgut was placed for eight days in a solution of 1 c cm iodine 2 gm of potassium iodide and sufficient water to make 100 c cm (Lugol's solution)

2 The Braun Melsungen method. The catgut was placed for at least twenty four hours in a solution of 2 c cm of iodine 43 gm of potassium iodide distilled water sufficient to make 500 c cm and 500 c cm of alcohol

3 The Heusser method. The catgut was placed for a period of several days in a solution of 3 c cm of iodine 225 c cm of benzine and 75 c cm of liquid paraffin

Tests showed that only the Lugol's solution sterilized. Iodine alcohol and iodine benzine solutions failed so often that they proved useless. As alcohol and benzine cannot soften the catgut the iodine cannot penetrate it. The Lugol solution softened the catgut but did not weaken it any more than the other solutions or as much as soaking in water

ZILLMER (Z)

Ruef H. A Further Report on the Clinical Use of Cutis Subcutis Transplantation (Weiterer Beitrag zur klinischen Verwendung der Cutis Subcutis pflanzung) *A h f kl n Ch* 1933 cx 366

Ruef reports the cases in which cutis subcutis transplantations were done during the past year at the surgical clinic of the University of Freiburg

In this operation no free tissue transplantation is attempted but the connective tissue present at the site is stimulated through irritation

The transplants are often taken directly from the field of operation but usually from the outer side of the upper portion of the thigh. Here the cutis can be easily removed in one strip. In the stripping of the cutis the characteristic white net like perforated stratum reticulare of the subcutis will serve as a guide. According to Rehn the stripping of the layer of cutis is facilitated if the skin is frozen with ethyl chloride. The inclusion of the stratum reticulare in the transplant is recommended because of its high resistance

Cutis subcutis transplantation was used by Rehn ten times in cases of hernia once as a substitute

for tendon five times in loose joints once in a case of habitual luxation of the patella and twice in cases of fistula of the bladder. The course of the cases has demonstrated anew that the transplantation material under discussion meets the most severe mechanical requirements. Beyond this it is not remarkable as the cases of infection indicate. In histological sections the newly formed fascia and tendon tissues can be readily distinguished. HAGEMANN (Z)

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

Schoenbauer L. and Demel R. Investigations of the Bacteria in Aseptic Operative Wounds and the Behavior of Drainage Material (Bakteriologische Untersuchung ueber den Keimgehalt aseptische Operationswunden und ueber das Verhalten des Drainagematerials) *Arch f kl n Ch* 1933 c 196

The secretion was taken for examination before the suturing of the musculature in twenty one cases of thyroidectomy and was found sterile in twenty cases in which the duration of operation was one to two hours. In one case in which the operation consumed three hours isolated colonies of staphylococcus albus grew on bouillon and agar

After major operations on the stomach and gall bladder the secretion was absolutely sterile when the operation did not last longer than an hour and a quarter. After operations of longer duration staphylococcus albus usually grew on the nutrient media and in isolated cases Gram positive cocci. In a large series of cases no pathogenic organisms were found in drains lying for twenty four hours in the wound cavity. In a few cases staphylococcus albus staphylococcus aureus and staphylococcus pyogenes aureus were demonstrated. HOEFLE (Z)

Melchior E. and Lubinski H. The Bacteriology of the Cleaned Granulating Wound (Zur Bakteriologie gereinigter granulierender Wunden) *Z t allg f Ch* 1933 l 71

There is a generally prevalent false conception that the granulating wound is a field of action for bacteria. The authors therefore conducted investigations on the bacterial content of freshly granulating wounds

The secretion obtained with a platinum loop was transplanted to ascites agar Loeffler's serum and meat bouillon besides smears were examined microscopically. A series of sixty nine cases in which only a single inoculation was made showed that the bacterial flora is much less than is generally assumed. The specimens from fifty nine wounds were positive and from ten sterile. Bacilli of the

diphtheria group were found seven times and true diphtheria was found four times. The staphylococcus aureus hæmolyticus and the staphylococcus albus were found most often streptococci alone were found only once and together with other bacteria nine times.

In a second series of experiments it was shown by frequently repeated experiments that the bacterial flora of a wound is subject to considerable variation

WORLDGUTH (2)

### ANÆSTHESIA

Trotter W. and Wheeler Sir W. I. de C. Anæsthesia from the Surgeon's Point of View. *B. I. M. J.* 93 11791

Trotter chooses the anæsthetic to suit the particular case. For general use he prefers ether. Chloroform he employs for all mouth, jaw, larynx and pharynx conditions and almost invariably with laryngotomy or tracheotomy openings which render its use safer. He employs chloroform also in a large number of brain and spinal cases and for radical breast amputations. Nitrous oxide he selects for delicate or enfeebled patients and if necessary supplements it with pre-operative hypodermics of morphine, local anæsthesia or small amounts of ether vapor.

Among regional methods he now considers spinal anæsthesia safe but states that it is limited physiologically to persons whose circulatory system is in reasonably good condition and capable of reaction and is limited anatomically to operations which cannot be extended much above the umbilicus. Sacral anæsthesia is used for limited operations on the perineum such as hæmorrhoid operations. Nerve trunk anæsthesia is especially valuable to block the intercostal nerves in operations on the chest and abdomen and to block the brachial plexus above the clavicle for surgical work on the upper limbs.

Next to ether local infiltration anæsthesia has the widest application. It is particularly useful in all superficial and definitely limited dissections and when inhalation narcosis is contra-indicated.

Wheeler emphasizes the importance of constructive pre-operative preparation by alkalizing the

urine with bicarbonate of soda, the avoidance of harmful purgation, the administration of large quantities of water by mouth or of saline solution by rectum for ten to twelve hours before operation and in critical cases and those of children the administration of glucose for a day or two prior to the surgical work. For cases of sudden collapse he urges the employment of the abandoned method of direct artificial respiration, the patient's lungs being inflated by blowing into them either through the mouth-piece of the ether inhaler or through the closed fist.

Boyd and McConnell consider oil ether, colonic etherization especially desirable for general surgery on the head and neck.

GEORGE R. McAVITT, M.D.

Sington H. Anæsthesia for Children. *B. I. M. J.* 93 11801

As the child is a more delicate organism than the adult it is necessary to conserve his strength in every way as by avoiding harmful pre-operative starvation and purgation. An additional safeguard is a routine urinalysis which may reveal a carbouluria when carbolic fomentations have been used or an acetonauria both of which contra-indicate operation. Acetonauria often develops from apparently very slight changes in the diet and is far more prevalent than is generally believed; it was found in 62 per cent of cases. To prevent this condition glucose should be given for two days prior to operation and continued in the after-treatment. A further prophylactic measure is a hypodermic injection of atropine to keep the narrow airway free from secretions.

Ether is the anæsthetic of choice but nitrous oxide is selected for such cases as hypertrophic pyloric stenosis or intussusception and ethyl chloride is used for dental extractions. Gentleness and understanding are especially desirable in an anæsthetist for children.

Convalescence is rendered more comfortable by instilling a drop of castor oil in each eye when the administration of the anæsthetic is finished by sponging out the mouth with normal saline solution and by lessening postoperative pain by rectal sedatives of potassium bismite and aspirin.

GEORGE P. McAVITT, M.D.

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Coolidge W D and Moore C N A Water Cooled  
High Voltage X Ray Tube 1m J Roentgenol  
1923 884

The authors describe and illustrate by diagrams a new type of tube with a water cooled anode and a high capacity. They discuss also the type of transformer and insulated water cooling system most suitable for activating it.

The output of the tube which has a capacity of 50 ma and 50 000 volts is greatly influenced by the type of generating apparatus and varies also when different transformers of the same type are used. With the interrupterless type of transformer the tube operates better with a ballast resistance control than with an autotransformer control. It gives a greater output with a constant potential continuous current type of machine than with an interrupterless type.

As compared with the present type of tube operating under the present average conditions (5 ma and 200 000 volts) this new water cooled tube gives four and three tenths as much X ray intensity at 30 ma and 50 000 volts, eight and twenty seven hundredths times as much at 30 ma and 50 000 volts and fourteen or fifteen times as much at 50 ma and 250 000 volts. With these high currents and voltages the X ray intensity is not proportional to the milliamperage probably because of distortion of wave form but is essentially proportionate to energy input.

The question of the desirability of such an increase in X ray intensity in therapy must be determined by the members of the medical profession.

CHARLES H HFAOCK M D

Riebler F Standardization of Roentgen Output  
R d J gy 9 3 153

The problems presented in standardizing roentgen ray output are defined by the author as follows:

1 The roentgen ray tube should be treated as a converter. Its output of useful rays may be determined (1) indirectly by making measurements relative to the electrical input and estimating the probable output and (2) directly by measuring the output itself.

2 The choice between these two methods depends on (1) the accuracy with which the final quantity of radiation may be determined and (2) the complexity and expense of the apparatus involved and its adaptability for general use.

3 The indirect method (measurement of the input and estimation of the output) is in wide use today but is very inaccurate. If it is to be useful one of the following additional steps must be taken:

(1) If the cause of inaccuracy can be determined to reside in the measurements of input additional measurements or safeguards must be developed and provided so that the reading of the input may be made to mean something definite in the way of output. (2) If the cause of inaccuracy can be determined to reside in the roentgen ray apparatus supplying current to the tube this apparatus must be modified so that the discrepancy will be reduced and the present method of measuring input may give a satisfactorily accurate determination of the output.

4 To determine the relative availability of the direct method of measurement the following factors must be considered: (1) Can the beam of roentgen rays be used to produce a measurable effect on some indicating substance which will correspond to the biologic intensity of the action of the ray? (2) Can this indication be made to operate an apparatus sufficiently dependable for general use? (3) Can the indication of this apparatus be made to apply directly to the problem in hand without the necessity of computations or corrections?

The various points of the outline are given detailed consideration and the inaccuracies resulting from measurements of dosages depending on input even with the most modern appliances are pointed out. With a view to measuring the roentgen ray output directly in a manner adaptable to general use the author has devised a dosimeter which he describes. The advantages of its use are given by him as follows:

1 The skin dosage is obtained directly by reading the meter indication without the necessity for computing the square of the distance.

2 The total dosage is recorded even if the apparatus is running with the milliamperage a little too high or a little too low.

3 If filters of a known thickness are used and the skin area is placed at a known distance from the target a certain depth dosage will be given by the given skin dosage and this depth dosage will not vary greatly even for considerable changes in the spark gap on the apparatus during operation.

In conclusion the following summary is offered: Estimating roentgen ray dosage output in terms of the mill ampere and spark gap input to the tube is highly inaccurate and unsuited for the purposes of therapy.

Occasional measurements of the roentgen ray output by ionization methods are of assistance in enabling the operator to approximate dosage more closely but such occasional measurements do not by any means define what is happening continually during the use of the machine.

A method of measuring dosage continually while it progresses and adding the total effective value of



dosage given to one patient on an easily visible scale has been developed and is presented here with

Tests on this method to date indicate that it will be sufficiently reliable for general use and that it will provide an interchangeable standard of measurement

ADOLPH HARTUNG M.D.

Gottlieb C. The Use of Iodose Curves in X-ray Therapy Showing the Inaccuracy of the Desauer Charts. *A. J. R.* 1933 193

In the experiments reported three methods of measurement were used (1) the roentgen dosimeter of Siemens and Halske (2) the neointensiform apparatus of Dessauer and (3) a photographic film. In all instances the measurements agreed with those reported by Holfelder.

When compared with Desauer's results the following differences were noted:

1. The primary cone was sharply defined instead of being surrounded by a wide and only slightly weaker stray field. The latter can be neglected for therapeutic purposes.

2. A contraction of the stray field was noted at the surface and a second contraction at greater depths instead of a divergence below the surface.

3. The intensity value was lower especially at the greater depths.

| Depth | C <sub>sy</sub> | T <sub>m</sub> la <sub>ral</sub> from te | F <sub>m</sub> la <sub>ral</sub> from | S <sub>m</sub> lateral m |
|-------|-----------------|--|---------------------------------------|--------------------------|
| 0     | 100 (100)       | 98 (94)                                  | 1 (57)                                | 5 (27)                   |
| 2     | 95 (79)         | 90 (76)                                  | 7 (51)                                | 9 (27)                   |
| 4     | 75 (65)         | 70 (6)                                   | 3 (45)                                | 1 (6)                    |
| 6     | 54 (53)         | 5 (5)                                    | 4 (38)                                | 1 (25)                   |
| 8     | 39 (40)         | 37 (44)                                  | 0 (34)                                | 1 (3)                    |
| 10    | 23 (39)         | 27 (37)                                  | 5 (29)                                | 9 (6)                    |
| 12    | 20 (33)         | 19 (31)                                  | 2 (25)                                | 6 (6)                    |
| 14    | 4 (6)           | 14 (4)                                   | 1 ( )                                 | 4 (5)                    |
| 6     | 0 (22)          | 9 ( )                                    | 5 (5)                                 | 3 (3)                    |

Figures in parentheses are the values by Dessauer.

4. There was a prominent bump at the beginning of the curve instead of a logarithmic curve.

CHARLES H. HEACOCK M.D.

Cushway B. C. The Present Status of Deep X-ray Therapy. *Ill. M. J.* 1923 135

The author reviews the apparatus used, the technique employed, and the results obtained prior to 1902. The improved and more powerful equipment of today, the present better knowledge of the physics involved and the more accurate modern method of measurement are contrasted with those of the earlier period. The results obtained have not improved in proportion to the advancement in equipment technique and scientific knowledge. This may be explained on the basis of the clinical knowledge and judgment of the pioneers in roentgenology.

However, good results are being reported more uniformly and relief is being given in many conditions in which X-ray treatment was not attempted in the earlier days. Lesions too deep for treatment with the earlier equipment are responding to the use of 200,000 volts. The author cites several cases of deep malignancy in which improvement was noted following deep therapy. Four of these were cases of carcinoma of the esophagus.

Working in a postgraduate institution, Cushway has been impressed by the necessity for a better understanding on the part of the general practitioner regarding conditions amenable to X-ray treatment. To malignancy and the dermatoses, we must add glandular hyperplasia, leukemia, hyperthyroidism, persistent thymus, disturbances of ovarian function, uterine fibroids, otosclerosis, hypertrophy of the prostate, hypertrophy of the tonsils, keloids, and conditions in which it is desired to influence the clotting time of the blood.

CHARLES H. HEACOCK M.D.

Dessauer F. The Treatment of Carcinoma with the Roentgen Ray. *Lectures on the Physical Bases of Deep Therapy*. (Zur Applikation des Carcinom mit Röntgenstrahlung. Vorträge über die Physik der tiefen Strahlentherapie.) Leipzig: S. Karger, 1933.

The author reviews the development of deep roentgen therapy. On account of their great number, he does not mention the various writers on this subject, referring chiefly to his own work to explain the action of the roentgen rays on deep tumors from the physicist's point of view.

In the first lecture, which deals with the problem of combating carcinoma with physical agents and the possibility of its solution, the author discusses the manner in which the electric action of the roentgen rays can be applied to the treatment of deep foci of pathological cells without damaging normal tissues. Especially the skin and defines the terms "quantitative" and "qualitative homogeneity."

Ray of short wave length act differently than those of long wave length and consequently have a different effect. Therefore, qualitative homogeneity is essential as well as quantitative homogeneity. In order to measure accurately and to utilize different tissues in sensibility, not only the same kind but also the same strength of rays must be used on the different tissues.

In the second lecture, which deals with the electrochemical basis of deep therapy, the author discusses the possibility of obtaining homogeneous rays by (1) filtering the focus, (2) creating hard rays and filtering them, and (3) coarsening. In this connection, he describes his transducer and discusses its importance in the construction of a substantial apparatus.

The third lecture on the physical penetration and distribution of the rays, gives in the form of rules and formulae the relationship of hardness and efficiency to the tension and the relation of

absorption and resistance when hard and soft rays penetrate bodies of high and low atomic weight. Dessauer describes in detail the methods by which he and Verheller measured the depth doses in the water phantom and compares their findings with those reported by others. He gives also some of the known isodose curves of longitudinal and cross sections through various single and combined ray pyramids. On the basis of his investigations he rejects the cross fire method with many small fields because it is of doubtful value in the raying of large fields. In conclusion he discusses the possibility of increasing the depth dose by the application of additional strata.

In the fourth lecture which deals with the practical application of the physical principles of depth raying, Dessauer gives the practitioner practical advice with regard to the planning and technique of raying. The first rule is to form from the complicated geometrical shapes of the human body a simple shape by the superposition of layers. When this is done it is possible to know with exactness how the rays will be distributed internally. In cases of carcinoma of the tongue Dessauer fills the mouth with mush and in cases of carcinoma of the stomach he fills the stomach with water containing a peristalsis inhibiting drug. Thus he does to establish the same favorable conditions that obtain in the

uterus. The good results obtained in carcinoma of the uterus he attributes to the location of the disease area in the depth of a large zone.

With the aid of numerous isodose curves in one plane the type of rays, the focus distance, the size and number of the portals and the position of the central ray are made out. To perform raying the author requires a holder attached to the raying table. The Dessauer Warnckros holder and its use are described with illustrations. WEHMER (Z)

Warren S L and Whipple G H. Roentgen Ray Intoxication. *J Im M Iss* 1923 LXXXI 1673

The finding of studies made on animals indicate clearly that the intestinal epithelium is peculiarly sensitive to the hard roentgen rays used in modern therapy. In previous contributions the authors and others have shown a definite relationship between this sensitivity and roentgen ray intoxication. In this article Warren and Whipple review in the light of this knowledge some of the scattered and incomplete case reports to show that the intestinal epithelium in man is sensitive to the hard or short wave length roentgen rays. These observations indicate that care and judgment must be used in the exhibition of such rays when the intestines are included in the field of irradiation.

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MAY 1924

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*Supplementary to*

**Surgery, Gynecology and Obstetrics**

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Editorial communication should be sent to Franklin H Martin Editor 30 N Michigan Ave Chicago  
Editorial and Business Office 30 N Michigan Ave Chicago Ill no U S A  
Published for Great Britain by Tindall & Cox 8 Henrietta Street Covent Garden London W C



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## EDITOR'S COMMENT

IT is often difficult for the editors to choose from the abundance of material that passes before them from month to month the original articles that will prove most interesting and helpful to the majority of our readers. With a clientele that embraces not only the English speaking nations of the world but also the far flung domains of six continents a clientele whose chief need and interests we can at times only guess at from the problems and difficulties that confront us in our own domain we must not infrequently in our choice fall short of the expectations and desires of our reader. The comments that reach us from time to time have been so uniformly favorable that we can conclude only that our readers are bravely concealing their disappointments and ending us only their complimentary speeches. We urge them however not to do so but to let us know in what ways the ABSTRACT can more nearly attain its purpose—to keep its readers in touch with all that is new and worth while in surgical literature.

The current number of the ABSTRACT contains an unusually large number of brief abstracts the majority of them of very practical interest. Among the longer abstracts a number deserve particular mention. Dott's investigation of the function of the pituitary and thyroid gland (p. 407) and Marine's emphasis on the importance of a knowledge of thyroid physiology in the control of thyroid disease (p. 401) form important contributions to the subject of thyroid surgery. Bruening's report of the results of operative treatment in a case of angina pectoris (p. 408) brings additional data for the new chapter that is being written on the surgery of the sympathetic system. Seelig and Chouke's interesting experimental study on inguinal hernia (p. 41) suggests some basic underlying errors in our present conception of the proper method of hernial repair.

Five particularly interesting abstracts dealing with different phases of gastric and duodenal pathology will be found in this month's issue of the ABSTRACT. Finsterer's radical method of treating non-resectable ulcer of the duodenum (p. 40) will be noted with especial interest because of the author's recent visit to America. Nakamura's discussion of focal infection as the chief etiological factor in gastric ulcer (p. 413) and Eusterman's report of a series of case of

recurrent ulcer of the stomach and duodenum (p. 416) add further strength to the position of those who ascribe to infection a primary rôle in the production of peptic ulcer. McCreery's report of a series of cases of acute perforation of gastric ulcer from Bellevue Hospital New York (p. 415) and Walton's discussion of chronic dyspepsias of women (p. 412) complete this interesting group of abstracts.

BOWING'S argument for the pre-operative application of radium in operative or borderline cases of carcinoma of the cervix (p. 426) will appeal to every surgeon as exemplifying the most effective method at present available for combating the most dreaded form of malignancy. Mason and Storrs' analysis of 400 cases of extra uterine pregnancy will interest both the gynecologist and the general surgeon.

The symposium on sterility presented by Spalding, Pettit, Anderson, Lynch, Pottinger and Loomis at a recent meeting of the California State Medical Society (p. 428) indicates the wide spread interest and careful study that are being devoted to this perplexing problem.

Two abstracts of particular interest to the orthopedic surgeon are Leriche and Hours' experimental study of the function of the perosteum based on a number of resections of the diaphysis of the adult rabbit (p. 440) and Hibbs' report of fifty nine cases of scoliosis treated by the fusion operation (p. 452). Both the orthopedic and the general surgeon will appreciate the abstract of the symposium on acute primary infections of the hand (p. 461) presented at a meeting of the British Medical Association.

A number of other interesting and helpful abstracts can be only mentioned. Lee's discussion on the treatment of turns (p. 459) sets forth some rational and non patented ideas on this frequently discussed subject. Graves and Davidoff's experimental study on the regurgitation of vesical contents (p. 445) establishes definitely the possibility of infection ascending from the bladder to the ureters and kidneys. Warren and Whipple's experimental study of bacterial invasion as influenced by X-ray destruction of the mucosa of the intestine (p. 466) add another interesting chapter to their many original contributions on the physiology of the gastro-intestinal tract.

# INTERNATIONAL ABSTRACT OF SURGERY

MAY 1924

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

Haden R L. Elective Localization in the Eye of  
Bacteria from Infected Teeth. *J. H. T. Med.*  
93: 118: 28

An etiological relationship between chronic foci of infection and systemic disease having been established the selective affinity of certain bacteria must be demonstrated. Rosenow has shown that streptococci freshly isolated from infected tissue tend to reproduce in animal the lesion from which the patient suffered. Others working along similar lines but with different techniques have failed to arrive at the same conclusion.

Haden injected intravenously into rabbits bacteria which he obtained from the root tip or pulp of teeth of fifteen patients suffering with eye infections. Of the sixty six animals receiving the injections 63.2 per cent developed eye lesions. Of 160 rabbits injected with cultures from the teeth of persons with no systemic disease or with diseases other than infection of the eye only 14.8 per cent developed eye lesions. In both groups animals were involved which were not involved in the patients. The high percentage of these rabbits showing eye lesions would tend to prove that selective affinity is a probability.

VIRGIL WESTCOTT M.D.

Key B W. Antidiphtheria Serum in Ocular  
Infection. A Clinical and Experimental Study  
of Ninety One Cases. *J. A. M. A.* 15: 94  
188: 183

Key's clinical experiences and laboratory experiments with antidiphtheria serum in combating pneumococcal and staphylococcal infection of the retina and media of the eye add to the proof of the efficacy of non specific treatment. In forty eight cases of hypopyon keratitis the cornea was incised and cauterized with carbolic acid followed by alcohol. From 1000 to 5000 units of antidiphtheria serum were then injected and in from twenty four to forty eight hours this was repeated. The hypo-

pyon was reduced or disappeared the pain and injection were relieved and vision was improved. In eighteen cases of infection following perforation the pain was relieved and the anterior segment cleared up. This occurred also in eleven cases of panophthalmitis but the globe became disintegrated. In twelve cases of ulcer serpens cauterization followed by the injection of serum gave good results.

The author is carrying out a series of experiments to determine (1) the effect of previously injected immunizing doses for prophylaxis (2) the relative value of normal horse serum and antidiphtheria serum and (3) the maximum and minimum dosage in relation to the time and character of the infection.

VIRGIL WESTCOTT M.D.

Adrogué E. Amblyopia Due to Abuse of Alcohol  
and Nicotine. *L. ampl. op. al. holic nic. ti. ca.*  
*bus.* *Se. d. n. d.* 19: 3: 320

In the Argentine Republic acute alcohol nicotine intoxication causing amblyopia and amaurosis is rare but the chronic condition is common. Of 205 cases of affections of the optic nerve forty eight were traced to the latter. It usually occurs in men between 35 and 50 years of age who smoke daily four or five cigars of inferior quality. The intoxication generally results in a paracentral scotoma.

W. A. BRENNAN

Buttle T H. Modern Optical Methods in the  
Examination of the Eye. *B. M. J.* 9: 4: 18

The author states that with a self illuminating ophthalmoscope red free light Gullstrand's ophthalmoscope for demonstration and stereoscopic study and Gullstrand's slit lamp with Czapski's microscope more accurate and earlier diagnoses of eye diseases can be made and the prognosis may be improved because treatment can be begun from twenty four to forty eight hours sooner. This is true especially in cases of acute corneal and uveal lesions and sympathetic ophthalmia.

THOMAS D. ALLEN M.D.



HARMAN stated that the results obtained by passing the target from the sighted to the blind area are not correct and that all of the ophthalmologists should agree to work from a known blind area to the sighted. S. HARMAN did not agree with this.

SIR JOHN HARRISON called attention to the fact that Tupper and others have presented evidence indicating that although there is a definite mathematical relation between the intensity of the stimulus and the size of the area stimulated in the macular area there is no such simple relationship for stimuli affecting the periphery of the retina.

LICKARD discussed the field in neurotic persons and the effect of suggestion in such cases but remarked that a change should never be regarded as functional until all possibility of an actual lesion has been excluded.

THOMAS D. ALLEN, M.D.

Falk, F. L. Retrobulbar Neuritis Associated With Diseases of the Nasal Accessory Sinuses. *A. J. E. M. J. & M. J. & C. Co.* 923, 1924.

The author calls attention to the fact that there is a direct connection between the deeper and more serious ocular disturbances and diseases of the nasal accessory sinuses. He reports ten cases of retrobulbar neuritis due to sinus disease. In both there was a lateral scotoma with contraction of the visual fields.

In the first case the onset of the condition was rapid and vision in the affected eye was reduced to light perception. A local examination as negative except for high deviation of the conjunctiva. The sinuses were opened but no gross pathological change was found. Microscopic examination however revealed chronic hyperplastic tissue. Improvement was rapid with hyperextension to normal. In this case the fundi were negative throughout the course of the disease.

The second case showed gradual visual disturbances which however did not progress to absolute blindness. A year previous to examination the patient had had a inflammation of the left eye. The attack probably represented the acute stage. The fundi showed temporary pallor of the disks. Following opening of the sinuses in the right eye vision in the left eye to 200 with correction. The patient became able to read the print. The atrophic changes in the eye were not further improved.

His particular interest is in the fact that the cases of the eye are not all the same.

## EAR

Smith, S. MacC. Otitic Cholesteatoma. *A. J. E. M. J. & M. J. & C. Co.* 924, 1924.

Cholesteatoma occurs most frequently in the temporal bone but has been noted in other osseous structures. The x-ray is of great value in small parts of the skull. The importance of the x-ray in the diagnosis of the disease is emphasized.

In some cases they may remain in the temporal bone for years without causing symptoms other than occasional attacks of vertigo and headache.

For permanent relief they must be removed thoroughly as possible. After their removal the treatment should be directed toward stopping the discharge and pathological proliferation. Skin grafting as practiced by Dench on the basis of Hal lance's method seems to give satisfactory results. Those not skilled in this procedure find that packing the cavity with small strips of gauze thoroughly moistened with a 1:1000 or 1:500 solution of acriflavine often prevents recurrence. The packing should be renewed at first every day and then every third or fourth day until all evidence of discharge or proliferation has disappeared. If evidence of recurrence appears later a 1 per cent solution of mercuriochrome should be used in stead of acriflavine.

The author reports an unusual interesting case of cholesteatoma which was about the size of a small pea.

JAMES C. BRADWELL, M.D.

Callison, J. G. Chronic Aural Discharge. *I. J. O. & P.* 94, 1925.

The author discusses the pathology of chronic discharging ears as revealed by the radical mastoid operation. He draws a sharp distinction between a clinical and an anatomical cure. A clinical cure implies top the discharge and cures the condition but does not remove the remaining subject to reinfection which succeeding pharyngitis. An anatomical cure is effected only when there is complete dermatization of the promontory and of all exposed areas extending up from the otitic opening of the eustachian tube or complete restoration of the drum membrane. The method and plan of procedure for accomplishing the ends are described.

The drugs used in the treatment of aural discharge include those employed for the destruction of granulation tissue and those used to control the infection and assist in the elimination of the bacterial flora. That the drug used by the otologist in his office treatments and those placed in the hands of the patient as ear drops.

Cases of aural discharge are divided into two classes: those with a heavy mucoïd discharge and those with a frankly purulent discharge. In the treatment of the former reliance is placed chiefly upon suction. In the latter silver nitrate or trichloroacetic acid is employed to destroy granulations and phenol tincture, fliorine, mercuriochrome 220 or neutral acriflavine are used for their antiseptic and penetrating properties. Practically all of these drugs are used in alcoholic vehicle. The advantages of one over the other are dependent of course on the local phenomena.

Callison is of the opinion that with patience and persistence on the part of the patient and physician a complete cure is often obtained after aural discharge is controlled and obtained in at least 50 per cent of the cases and that the hearing will improve after the discharge has been cured.

A. R. HILL, M.D.

**Jones C C Acute Suppurative Otitis Media in Infants** *J Iowa St Med Soc* 1923 18 500

Jones discusses the anatomy etiological factors symptoms physical signs diagnosis prophylaxis and treatment of acute suppurative otitis media in infants. The points chiefly emphasized are the following:

- 1 Acute otitis media occurs more frequently in infants than is generally believed
- 2 The primary etiological factors are lowered constitutional states with suppurative intranasal infection
- 3 The cause must receive a adequate treatment if conservative treatment of the aural condition is to be effective
- 4 Symptoms and signs of acute otitis are variable. There is a slow subacute type in which the predominating symptoms are gastro intestinal
- 5 The diagnosis depends entirely upon direct examination of the drum membrane. In doubtful cases myringotomy is warranted
- 6 In infants considerable osteitis may not cause superficial signs because the antrum is large and the aditus is wide
- 7 The object of a mastoidectomy is to preserve not only life but also the function of the ear
- 8 A healed mastoid scar is preferable to a chronic discharging ear defective hearing or anxiety concerning the course of the case

OTTO M. ROTT, M.D.

**Fraser J S A Plea for an International Investigation into Otosclerosis and Allied Forms of Deafness** *Lancet* 1923 1 89

Fraser reviews our present knowledge of the etiology pathology diagnosis and treatment of otosclerosis and advocates a study of this important subject by an international group. He raises the following questions:

- 1 Is otosclerosis a pathologic entity?
  - 2 Is it congenital? Is it hereditary in the labyrinth capsule of the fetus or infant?
  - 3 Is otosclerosis an inflammatory affection and does it follow otitis media? Can it be distinguished sharply from middle ear catarrh?
  - 4 Is otosclerosis a degenerative or wasting disease?
  - 5 Is there any connection between disorders of the endocrine glands and otosclerosis?
  - 6 What is the cause of deafness in otosclerosis since in early cases at least there is no bony loss of the stapes?
  - 7 What is the connection if any between otosclerosis nerve deafness and congenital deafness?
  - 8 How often is the vestibular apparatus involved in otosclerosis and why is there giddiness in one case and not in another?
- Fraser suggests that the investigation be organized according to the following plan:

- 1 Laboratory work Microscopical chemical experiment

- 2 Clinical (1) Statistical as regards age sex heredity distribution association with other diseases (2) symptoms clinical examination diagnosis (3) treatment medicinal ductless gland therapy vaccines local non-operative procedures operation

The two parts of the investigation should of course be coordinated e.g. the clinical examination and postmortem microscopic examination

The article contains three case reports and fifteen photomicrographs. FRANKLIN P. SCHLESER, M.D.

**Richard H J The X Ray as an Adjuvant in the Treatment of Impaired Hearing** *J Intern Med* 1923 510

On the basis of an experience with more than 600 cases Richardson employs three steps in the treatment of impaired hearing:

The usual otological procedures indicated by the condition

Sclerolytic X ray treatment to destroy the adentitious tissue in the nasopharynx and especially in Rosenmueller's fossa viz 3 ma 30 kv a tube skin distance of 15 in a 2 mm aluminum filter time nine minutes. For the application of this dose the patient is placed ventrally upon the X ray table with his head first inclined to the right. All but his head is then covered with a leaded leather protector. Over his head is placed a square of lead foil with an oval opening about 6 in in diameter which comes over the external meatus. Following the exposure of the right ear the head is turned to the left and the left ear is similarly treated. The exposures are repeated not oftener than every two weeks and may be given for six or eight sittings.

3 Stimulative X ray treatment which deals with the dulling of the reception of the transmission and the registration of the sound stimuli. This is best distributed over the hearing and associated centers and in the region of the auditory nerve. Trial and error has shown that the following dose to be the most efficacious: 8 sterilized ma 50 k tube skin distance 24 in a filter equivalent to 1 mm of aluminum time 2 1/2 seconds.

The patient is directed to rest the entire head by directing the energy through four portals of entry. For convenience the central target may be taken as the skull. With this as a guide the portals of entry become:

On the left behind the mastoid the central ray passing in the direction of a line joining the mastoid tip and the sella turcica.

2 Above the central ray passing into the skull in the direction of a line joining the anterior fontanel and the sella turcica.

3 On the right behind the mastoid as for the left side.

4 Behind the central ray passing along a line joining the occipital protuberance and the sella turcica.

Richardson has not demonstrated improvement following this procedure in cases that ordinarily would be regarded as hopeless.

The article is concluded with the following observations:

1 The original pathology does not govern the efficacy of the treatment

2 Improvement when it occurs is either astonishingly immediate or becomes apparent only after several treatments

3 Improvement is at times followed by relapse but not to the low level of the original deafness. The gain is apparently progressive

4 Improvement is usually manifested first in increased power to interpret the conversational voice and next in the ability to hear music

5 The most striking subjective improvement is the very general disappearance of tinnitus aurium

6 Present records show improvement in 60 per cent of cases treated

7 The treatment described is entirely harmless  
Otto M. Roth M.D.

**Hays H. M. Suspected Mastoiditis. Clinical Diagnosis with Special Reference to the Interpretation of the X-Ray Pictures.** *L. J. 1923 xxxi 924*

In the clinical diagnosis of suspected mastoiditis the most significant signs and symptoms in the order of their importance are as follows:

1 The character of the discharge and the type of infecting organism

2 Narrowing of the canal which cannot be accounted for by any acute symptoms within the canal itself

3 Ulceration of the opening in the drum showing retention

4 Involvement of the drum with sagging of the posterosuperior wall

5 The amount of retained secretions that can be eliminated from the middle ear by suction

6 The general physical condition of the patient as indicated by the temperature, blood picture, etc., and the presence or absence of headache and malaise

7 The interpretation of the X-ray picture. It is important that the roentgenograms be taken by a well-trained roentgenologist.

The X-ray is often the deciding factor as to whether of native interference is necessary but its findings are of value only when they are considered in conjunction with the clinical symptoms.

The author reports three cases.

IRAN LIND SCHULTZ M.D.

**Walke F. M. R. The Work of Sherrington on the Physiology of Posture.** *J. L. & G. & Otol.* 1923 x 642

To understand the research of Magnus and de Kleyn on labyrinthine function is necessary to have a definite conception of the meaning of muscle tone.

Dr. Charles Sherrington showed that the decerebrate animal (one in which a transection of the brain stem in the region of the tentorium has been done)

can maintain a standing posture through the action of the anti-gravity group of muscles, namely the extensors of the limbs, neck, and back, and the elevators of the jaws and tail. This phenomenon is called reflex standing. Muscle tone is defined as the basis of the reflex material of posture.

The maintenance of tone is dependent upon integrity of the afferent nerve supply of the muscles but tone can be influenced or modified by impulses arising elsewhere in deep structures—muscles, tendons, or joints. Other tone-regulating influences originate in the labyrinths and in the muscles of the limbs.

WILLIAM B. STARR, M.D.

## NOSE

**Stein O. J. A Survey of the Hay Fever Question. A Critical Review of the Situation Relative to the Etiology and Treatment.** *Ann. Otol. Rhinol. & Laryngol.* 1923 xv 214

The evidence at hand indicates that hay fever is a disorder of sensitization. The cause of this sensitization has not yet been definitely determined but is probably a change in the body fluids.

Hay fever symptoms may be due to an anaphylactic reaction or a reflex action. In persons who are sensitive, local external irritants cause the symptoms of hyperaesthetic rhinitis.

In a small number of cases of hay fever the use of specific pollen solution will give relief. Immunity is usually temporary; therefore the treatment must be repeated as often as necessary.

The percentage of cures resulting from the use of pollen vaccines is no greater than that following other methods.

Freedom from symptoms is obtained most frequently from nerve blocking with alcohol. This treatment has the added advantage that it is less expensive than the others and requires less time.

JAMES C. BRISWELL, M.D.

**Healy C. A. and Crowe S. J. Asthma and Infections of the Accessory Nasal Sinuses. A Study Based on Sixty-Two Cases.** *Bull. J. H. S. Hosp. & Ho. p. Balt.* 1923 x 410

Because it is generally conceded that pathological conditions in the nose and sinuses bear some relation to clinical asthma, the authors have endeavored in this study of sixty-two cases to determine (1) the value of operations on the nose and accessory sinuses as part of a therapeutic program in the cases of asthmatic patients presenting pathological conditions in that region, and (2) the type of operation (whether simple or radical) which is most beneficial. Their conclusions are as follows:

1 Operations should not be performed indiscriminately on the nose and accessory nasal sinuses of asthmatics.

2 Operations should be performed only on proper indications and should be radical in the sense that their purpose should be to eradicate all regional infection.



tumor in the brain (precuneus) which microscopically proved to be a pleomorphic alveolar sarcoma (Nauwerk) and was looked upon as a metastasis of the similarly constructed tumor of the jaw.

The author considers the case one of sarcomatous epulis. He believes that the ordinary epulis may occasionally become malignant and metastasize and suggests that perhaps even the common epulis may not be the sarcoma like benign growth described in the textbooks. (LASS (Z))

## THROAT

Caldera The Biological Treatment of Sarcoma of the Upper Respiratory Tract (Tait m t)  
11 que des mes d s p em ér es ie  
11 h l i del y g l 1933 x x 99

Caldera reviews the various biological methods suggested for the treatment of sarcoma. Most of them have been unsuccessful but in a case treated two years ago Caldera obtained a cure following treatment by Citelli's method. Encouraged by this first success he recently treated two cases of sarcoma of the tonsil and one case of sarcoma of the nasal fossa with autogenous vaccine. The results however were quite different from that in the first case. There was at first amelioration perhaps recovery but recurrence soon followed. In the first case the presence of a very virulent streptococcal infection in the nasal fossa set up a violent local and general reaction.

Caldera suggests that the temporary improvement may have been due to the action of the streptococcal lytic power of which has been reported.

W A B R

Crill Autovaccination Radium and the X-Ray in the Treatment of Malignant Tumors of the Upper Respiratory Tract (Aut)  
11 r l met o x l n l 1931 m  
mul gne 1 s 1 f m r es p at 11 h  
ter 1 d l 1 g l 1933 x x 101

Cavello reports the following cases of sarcoma treated with autogenous vaccine.

1. Melanotic sarcoma of the larynx. Treatment stopped because of the formation of nodules in the area treated.

2. Round cell sarcoma of the larynx. Treatment results given. Death from carcinoma.

3. Giant cell sarcoma of the right tonsil. Three injections given. Death from meningitis.

4. Small round cell sarcoma of the tonsil. Five injections given. Death from thrombosis of the pulmonary artery.

5. Melanotic sarcoma of the rhinopharynx. Six injections followed by partial removal of tumor and metastases.

The negative if not harmful result of treatment with autogenous vaccine in these cases led the author to conclude that in general a metastasis will be subjected to radium and X-ray therapy with advantage. (LASS (Z))

W A B

Collet and Rebattu The Intracranial Propagation of Pharyngeal Tumors (Stul ur l 1931 g l)  
ntr r en e les tum ur l ph rnx 11  
11 1 del 1 g l 1923 x x 94

The authors report two cases. The first was a case of tumor of the pharyngeal vault which caused headache, cervical adenopathy, ocular symptoms on the right side, ptosis, paralysis, trigeminal neuralgia, and sudden death. Autopsy revealed a tumor of the right half of the nasopharynx with intracranial invasion in the anterior part of the middle cerebral fossa.

The second case was a case of epithelial tumor of the hypopharynx which began in the cervical gland on the right side. Rhinoscopy revealed a tumor of the hypopharynx covering the laryngeal vestibule. Deep roentgenotherapy was given but was followed by recurrence and death. Autopsy revealed a tumor filling the right half of the pharynx with intracranial invasion on the left side through the middle cerebral fossa.

In both of the cases the gland were involved early. In neither case was there propagation to the nasal fossa nor to the pterygomaxillary fossa.

In the first instance microscopic examination showed the tumor to be a round cell sarcoma and in the second an epithelioma.

The authors discuss the mode of intracranial invasion of pharyngeal tumors. The cases reported show that this occurs not by metastasis but by way of the pterygomaxillary fossa or the ruptured anterior foramen. In both cases reported the invasion was through the foramen. Hence it precedes to the middle cerebral fossa gaining the apex of the petrous pyramid, the gas-trian ganglion and the external wall of the carotid sinus. There was no vascular disturbance in either case. (W A B R)

Smith S MacC. Indications For and Contra-Indication To Tonsillectomy in Adults (Th)  
p 1933 11

Removal of the tonsils does not always relieve the condition. In high tonsil removal was done. In both cases the majority of cases pathological tonsils are but an evolutionary factor contributing toward a general laryngeal disease.

The tonsil should be carefully examined; note be taken of the color and size to determine whether they are hypertrophied or extend beyond the margin of the palatoglossal fold. Therefore pus or caseous material may be present. If present, expect to preserve.

Small tonsils may cause greater disturbance of health than large tonsils.

The tonsil is not a useful inflamed but even in the pus is undoubtedly a menace to health. Whether it is large or small and therefore should be removed.

The presence of caseous material in the tonsillar crypt may not be the cause of general tonsillitis. Such material is usually found in various amount in the tonsils of adults and often in those of persons whose health is apparently good.





proved by shortening of the adductors the author proposes a new operative method. A laryngofissure is done first. After the exposure of the arytenoid cartilage from within the larynx the insertions of the adductors are divided and the arytenoid cartilage is fixed in such a position by tamponade that the vocal cord assumes the position of abduction.

The operation has proved successful in one case. The author subjects the methods advocated by others to sharp criticism. The illustrations used to explain the text are very instructive. F. SCHMIDT

Rosenthal G. Subdivisions of Tuberculous Laryngitis: Its Treatment by Tracheostomy. *Ann Surg* 1924; 79: 1-10.

In Rosenthal's opinion tuberculous laryngitis should not be considered a clinical entity but should be subdivided into its various components, some of which are more amenable to treatment than others. He therefore urges closer study of cases of bacterial epiglottitis, tuberculous interarytenoid infiltration, superior and inferior chondritis, etc., with or without the presence of tubercle bacilli in the squamous hypopharyngeal tubercles, and diffuse laryngitis in order to find the problem of tuberculous laryngitis may be simplified. If this is done the type of disease which will yield to present treatment with types which are not amenable to it may be worked out more intelligibly to determine treatment.

Many cases of tuberculosis brought to the attention of the health department are cured by early treatment.

tubercular lymphadenitis with suppurative changes in the lymph nodes. The treatment is with particular care for the lymphatic system. The best method is the use of the tuberculin test. The best method is the use of the tuberculin test. The best method is the use of the tuberculin test.

| Griff | Larynx | calP | rich | ndritti | Du | t | Röntgen |
|-------|--------|------|------|---------|----|---|---------|
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| 111   | 1      | 1    | 1    | 1       | 1  | 1 | 4       |
| 1     | 1      | 1    | 1    | 1       | 1  | 1 | 4       |

Alt two a c t i s f t h s e t g t h e  
r k e r e e l a p a t t e n g l e r i d l b g e  
a l t h e r o s o f t h e t r a t l g w m  
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t h i n t e r t e n l p c i a t t t a r  
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t r o g h l a n s e w t h t t n  
a u e r l m a A l t t h l r  
a e m a l l t b l t b e n k t h  
l t e s u b h o l d s g w p e r  
t e t e l r t t g

In conclusion Greif states that Marschick found hyaline cartilage very sensitive to the X ray.

W. L. HESSMAN

Williamson G S The Thyroid Apparatus in  
Man Lo 1 193 ccy 1337

On the basis of 2 000 autopsies the author describes the gross and microscopic anatomy and physiology of the thyroid parathyroid and thymus glands and concludes that these structures are intimately related anatomically physiologically and pathologically constituting an apparatus with a specific function. The thyroid gland is the main organ. The parathyroid, which are located in the course of the outflow tract in a neurohumoral capacity to measure the efficiency of the thyroid and through the sympathetic nervous system to adjust the thyroid activity to the needs of the body. The thymus is a reservoir for the effluent. This it stores according to its nature either as fat or in lymphocytes which are probably manufactured and elaborated in situ.

Since an important function of the lymphocytes is the carrying of nitrogen (nucleo nitrogen purine) in acid peptide the author is working on the hypothesis that the thymic apparatus is concerned primarily in the control of the direction of the protein synthesis in the body of plastic nitrogen or tripeptide nitrogen require. The thymus is the reservoir of nitrogen. Even the fat phase in the thymus add important nitrogen values for the body.

The third graph shows three phase strength in which the glenoid is at the 12 o'clock position and the scapula is at the 3 o'clock position. These three positions represent the three phases of the glenohumeral joint.

[illegible]

WALTER C. LUGER, M.D.

**Vine D. The Importance of Our Knowledge of  
Thyroid Biology in the Control of Thyroid  
Diseases. 441 Med 233 83**

The authors warn if there is a start  
to the inflationary process, the trap  
of a cost-price spiral will be set. They  
state that the first step is to limit the  
rate of inflation to a higher rate than  
the rate of inflation in the economy and  
to set the rate of inflation at a level  
that will be a mean between the  
rate of inflation and the rate of inflation  
in the economy. The authors also  
warn that the rate of inflation must be  
controlled. The rate of inflation must be  
controlled.





three times a day until the patient complains of nausea. The diet should consist largely of fats or carbohydrates.

Vomiting during a crisis cannot be controlled by drugs. In such cases a dry diet consisting of crackers, toast or cereal is tried and fluids are given by rectum or subcutaneously. Cathartics are usually avoided.

Operation is never attempted during a crisis. Ninety per cent of the author's patients are operated upon under local anesthesia.

#### ARTICLE XXXVIII BY

Reinhold W. Fattepatin of the Sympathetic Ganglia in Exophthalmic Goiter (Die Sympathic Ganglia in Exophthalmic Goiter).  
Dtsch. Arch. f. Klin. Med. 1913, 111, 7.

In seven cases of this condition below a disease and in one case of thyrotoxicosis (prominence of the eyes) the symptoms and struma with uterine congestion.

The author removed the upper and middle cervical sympathetic ganglia. The cases of clinical picture were cured. The only after-effects observed were occasional lacrimation and a marked injection of the conjunctiva immediately after the operation.

The author recommends sympathectomy with a retractor since it is faster, quicker and better results in the radical removal of the focus of toxin. He resects the base of struma and removes the cervical sympathetic.

He employs the sympathetic operation for the removal of the focus of Basedow's disease of struma with thyrotoxic goitrous heart and for the severe cardiac arrhythmias.

The cure seems to take place in three stages: the stage of rapid improvement (exophthalmos not increased, palpitation of the heart), the stage of slow improvement and the stage of complete cure.

BRIT. MED. J.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

**Cameron H C Intracranial Birth Injuries**  
*Lancet* 1923 cc 1292

The author calls attention to the immediate and delayed symptoms produced by intracranial birth injuries a subject which has been receiving considerable attention particularly on the part of neurologists. A skillful routine examination of the new born to determine the presence of intracranial hemorrhage is of the greatest importance. The name Little's disease is properly applied only to two groups of cases (1) those of paralytic rigidity without mental defect or convulsions and (2) those with general rigidity without convulsions or mental symptoms. Intracranial hemorrhage at birth does not always cause permanent damage.

LOYAL E DAVIS M D

**Harvey S C Compound Craniocerebral Injuries**  
*Boston Med & Surg J* 923 clxxx 9

Of 159 cases of skull fracture observed by the author during the last five years fourteen presented a wound which established direct continuity between the brain and the external surface of the skull. The majority of such compound craniocerebral injuries fall into two groups (1) wounds of the vault usually lacerating but sometimes penetrating and (2) wounds communicating with the air sinuses of the nasopharynx and usually produced by indirect violence. Twelve patients had a wound of the vault and two an injury involving the air sinuses.

The primary aim in the treatment of such compound wounds is the prevention of meningitis, encephalitis and abscess of the brain. The infectious material and tissue which is so damaged that it cannot be infected should be removed as soon and as thoroughly as possible and the opening from the external surface to the brain should be closed to prevent future infection. The wound in the scalp and the damaged bone should be excised en bloc. It is essential that the bone be removed outside the area of gross contamination and over intact dura. As a rule the lacerated dura soon becomes adherent to the subjacent meninges. Such adhesions should be disturbed as little as possible. Damaged cortex, gross dirt and foreign bodies should be removed from the cerebral substance. The closure of the divided wound should be effected in layers and in such manner that there will be no cerebrospinal fluid leakage. A small rubber tube which may be used as a drain for the first few hours immediately after the operation. The first evidence of infection calls for wide opening of the wound and the use of protective tissue to prevent a fungus cerebri.

Of the fourteen patients with a wound from the skull to the brain nine were operated upon and eight survived. None died from infection. Of the five not operated upon two survived. The remaining three deaths were due to severe concussion of the brain.

LOYAL E DAVIS M D

**Weitzel I The Prognosis After Trephination**  
(L e i r d s t é p n é) *Rev de chir* 1a 1923  
xli 580

The author examined 340 patients who had received head wound during the war. In some cases the examination was made as long as seven years after the operation.

In such cases the defect in the skull becomes partially filled by fibrous tissue. Foreign bodies within the cerebral substance do not necessarily provoke fatal complications but always represent a potential danger. Localized lesions of the motor sensory auditory or visual centers have a distinct tendency to improve. Epilepsy was rare in the cases studied and when it developed usually appeared within the first eighteen months after the injury and gradually ceased. Mental or psychic symptoms varying from simple failure of memory to marked mental defects occurred in 25 per cent of the cases.

LOYAL E DAVIS M D

**Olmos J F and Lizondo R Traumatic Cerebrospinal Rhinorrhoea Due to Opening of the Anterior Prolongation of the Right Lateral Ventricle** (Re re cerebros p l tra mática por ab tur del prolo g m ento a t i or lel entrifulo l t al derecho) *S m d* 193 xxx 30

The authors report the case of a man who sustained a fracture in the frontal region which was followed by coma for two days and subsequently by continuous headache which was especially severe on the right side. In less than a month Bravais-Jacksonian epilepsy developed the attacks occurring at varying intervals. The patient was not seen by a physician until nine months after the injury when he was brought to the hospital in a semi-unconscious state with incontinence of urine and feces. When his head was inclined on his chest a continuous jet of fluid issued from the right nostril. Analysis showed this to be cerebrospinal fluid. The patient died in convulsions a few weeks later.

Autopsy revealed an opening of the anterior prolongation of the right lateral ventricle. The authors conclude that the trauma caused the immediate opening of the posterior wall of the right frontal sinus rupture of the dura at this site and rupture of the encephalic mass with the production of hemorrhage and a consecutive hematoma a thin septum keeping the walls of the newly formed cavity sep-

arated from the anterior parietal lobe of the right lateral ventricle. The cause of the hemiparesis and epilepsy they believe was a chronic inflammatory process. They assume that the general high tension of the cerebral fluid and the epileptic attack caused an increase in the tension in the ventricular fluid resulting in its expulsion through the foramen of the open foramen of the lateral ventricle into the cavity formerly their tumor. W. A. B. S.

# Farr R. J. Encephalitis Simulating Acute Adrenal Condition. *Medical Record* 1923, 1, 35.

Farr reports three cases of paraneoplastic encephalitis of the adrenal gland which were ultimately proven to be encephalitis.

The first case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis. The patient later died of the disease. The patient later died of the disease. The patient later died of the disease.

The second case was that of a man of 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis. The patient later died of the disease. The patient later died of the disease. The patient later died of the disease.

The third case was that of a man 23 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis. The patient later died of the disease. The patient later died of the disease. The patient later died of the disease.

Bigley C. Jr. Intracranial Abscess. *J Am Med Ass* 1923, 1, 2161.

In spite of gradually increasing interest in the role of brain surgery a review of the literature on these cases

which the author has studied shows that the cure of brain abscess is still almost as much a matter of luck as it was twenty-five years ago. The mortality is still high in this disease as the best results with which surgeons interfere are secured upon a full knowledge of the anatomy of the brain and the nature of the abscess.

The author reports ten cases which illustrate the following points: (1) the importance of the location of the abscess; (2) the importance of the size of the abscess; (3) the importance of the nature of the abscess; (4) the importance of the treatment.

The first case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The second case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The third case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The fourth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The fifth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The sixth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The seventh case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The eighth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The ninth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The tenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The eleventh case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The twelfth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The thirteenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The fourteenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The fifteenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The sixteenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

The seventeenth case was that of a man 36 years of age who entered the hospital with a chronic symptom which were typical of acute intestinal obstruction but also with the characteristic rigidity of the neck and rigidity of the limbs which were typical of the nature of the condition was not a paraneoplastic encephalitis but a paraneoplastic encephalitis.

Secondary tumors may be formed within the cranial cavity from malignancy elsewhere

PAUL R. BILLS GLEY M.D.

Well M. P. and Weissmann Netter. Cerebromeningeal Tumors and the Bordet Wassermann Reaction (Tumeur cérébro-meningée et réaction de Bordet Wassermann). *Bull et mem Soc med d hôp d P.* 1923 35 ix 1423

It is pointed out that neoplasm of the meninges or structures in juxtaposition to them may cause a positive Wassermann reaction of the cerebrospinal fluid and an increased albumin content and cell count

LOYAL F. DAVIS M.D.

Dott N. M. An Investigation Into the Function of the Pituitary and Thyroid Glands. Part I. The Technique of Their Experimental Surgery and a Summary of Results. *Q. J. Med. Sci.* 1923 xii 241

This article is a preliminary communication dealing chiefly with the technique of experimental animal work on the thyroid and pituitary gland. Hyperfunction of these glands was obtained by the injection and feeding of gland extracts and hypofunction by operation. The technique of the operation is reviewed in detail.

The operative work on the pituitary body included complete extirpation, partial removal of the anterior lobe, partial removal of both lobes, partial removal of the anterior lobe and total removal of the posterior lobe, section of the stalk with the anterior lobe vessels stalk section with division of the anterior lobe vessels and the insertion of a platinum plate and total excision of the posterior lobe.

The findings of the experimental work prove that the anterior lobe exerts a powerful influence on the cell activities of the tissues. This is shown by a rise or fall in the metabolic rate as indicated by the temperature by the degree of adiposity, by the mental condition and by the rate of general development. It exerts a specific and vital influence also on tissues of embryonic type as represented by epiphyseal cartilage and germinal epithelium causing either their degeneration by its insufficiency or their activity by its excess.

The author suggests that the cause of experimental hypophyseal polyuria is a stimulation causing increased secretion of the pars intermedia.

Complete removal of the pars nervosa causes no physiological disturbance.

Thyroid disturbance is the inevitable consequence of experimental hypopituitarism. In future investigation the effects of thyroid treatments alone must be compared with those of thyroid and pituitary insufficiency.

The author concludes that the thyroid gland exercises the same influence on general cell activity and the metabolic rate as the anterior lobe of the pituitary. Therefore these glands may act independently of each other and occasionally for each other. In contrast to the thyroid which influences the rate

of tissue processes only the pituitary body exerts a special influence also on the vitality of the embryonic types of tissue.

PAUL R. BILLINGSLEY M.D.

## SPINAL CORD AND ITS COVERINGS

Aycock W. L. and Amoss H. L. Experiments on Local Specific Therapy in Poliomyelitis. The Utilization of Hypertonic Solutions in the Serum Treatment of Experimental Poliomyelitis. *Bull. Johns Hopkins Hosp.* 1933 xvi 361

Specific antibodies are known to be present in the blood sera of man and monkeys following recovery from poliomyelitis. As attempts to obtain an artificial hyperimmune serum have failed, experiments were carried out by the authors to determine the optimal use of the convalescent serum. Intravenous and intraspinal injections of this serum were not as beneficial as expected for the reason that the virus is located in the nerve tissue accessible to only a slight amount of the blood-borne antibody and not reached at all by intraspinal injections. The flow of the spinal fluid being away from the parenchymatous perivascular spaces, the choroid plexuses and the ventricles into the subarachnoid space.

From the work of Weed it was learned that anemia of the central nervous system whether caused by exsanguination, tying of the carotids or the intravenous injection of hypertonic sodium chloride solution induced a temporary reversal of the cerebrospinal fluid away from the subarachnoid space into the dural sinuses and by way of the tissue spaces into the capillaries so that it bathed the fibers of the white matter and the cells of the gray matter. From this fact the conclusion was drawn that the intravenous injection of sodium chloride would enable poliomyelitis antibodies introduced into the spinal canal to permeate to the site of the virus in the nerve tissue.

Acting on this hypothesis the authors caused poliomyelitis in monkeys by means of intracerebral inoculations of a suspension of glycerolated spinal cord from clinical cases and injected intravenously from 6 to 20 cc. of a 30 per cent solution of sodium chloride to bring about a reduction in the volume of the brain and cord. The findings were as follows:

1. Reversal of the flow of spinal fluid was found to occur in the oedematous infiltrated tissues of diseased animals and reduction of the spinal fluid pressure was possible.

2. In the course of the disease the use of hypertonic sodium-chloride solution alone was found of value to reduce the oedema.

3. Daily repetition of hypertonic sodium-chloride injections was associated with the danger of respiratory failure.

4. The optimal conditions for the administration of hypertonic solutions are yet to be worked out.

5. Improvement was noted twenty-four hours after the use of sodium chloride with the intraspinal serum.





causes a weakening of the vasoconstrictors and consequently a dilatation of the vessels and a decrease in the blood pressure.

Under certain circumstances when unilateral extirpation fails to bring about sufficient reduction in the blood pressure, bilateral extirpation of the cervicothoracic sympathetics with the interruption of the plexus caroticus may be indicated. In addition resection of the splanchnicus may be considered.

After the operation the skin temperature was always somewhat higher in the left hand than in the right and the plethysmograph curves showed a considerable difference. The secretion of sweat was reduced on the left side. During the operation a typical Horner syndrome was produced. In the first days following the operation the ocular phenomena receded somewhat. After that they remained stationary but the patient was not sensible of them.

Microscopic examination revealed inflammatory and degenerative changes particularly in the ganglion stellatum. These might have been responsible for the functional condition of irritation in the sympathetic system.

WORMAN (2)

Bardon and Mathey Cornat. *Periarterial Sympathectomy and Varicose Ulcers of the Leg* (Symp the tom péniartérielle et ulcères variqueux d jambe) *Lyon* 1923 xx 694

The authors report upon thirteen cases of varicose ulcers of the legs treated by periarterial sympathectomy of the femoral artery. The operation is indicated in cases of complex rebellious ulcers and cases of simple lesions in which rapid healing is desired. The contraindications are pronounced arteriosclerosis, cardiac decompensation and renal or hepatic insufficiency. The technique of the operation involves very delicate decortication of the femoral artery without perforation of its wall.

The results are astonishingly rapid. In the authors' cases which were not selected, cicatrization of the ulcers occurred within six to thirty-five days after the operation. All types of ulcers were represented and the majority of patients had been subjected to the usual treatments. In three of the thirteen cases the original condition has remained unchanged in one case after a year and in the two others after two years.

LOYAL E. DAVIS, M.D.

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Stulz E. and Fontaine R. Lipophagic Granuloma of the Breast (Le granulome lipohagique du sein) *Rev de chir* 1923 31 646

Stulz and Fontaine refer to a benign lesion of the breast of traumatic origin which simulates cancer. They have observed such a case. They refer also to the work of Lee and Blair in America who have reported the same condition as traumatic fat necrosis of the breast.

The authors' case was that of a 52-year-old woman who had borne two children. A month before she sought treatment she had suffered an injury of the left breast which resulted in a tumor. On examination in the hospital the clinical findings led to a diagnosis of cancer. The traumatism being credited with stimulating a pre-existing neoplasm. The breast was amputated.

During the operation the authors observed the rupture of a cystic cavity containing a clear yellow oily fluid. This was examined in the microscope but no evidence of cancer was found. The peripheral tumor was a fat cyst with thickened wall. The wall contained young connective tissue and multinuclear cells resembling giant cells around foreign bodies. The lesion was due to inflammatory reaction of the mammary fat. The authors designate it as a lipophagic granuloma and suggest the substitution of the term traumatic lipophagic granuloma for the term traumatic fat necrosis used by Lee and Blair.

Nine cases are found in the literature. In six there had been a violent traumatic shock but in the three others the tumor followed a simple hypodermic puncture. The lapse of time between the injury and the appearance of the tumor ranged from three weeks to ten years. Seven of the nine subjects were affected with obesity. In six cases the symptoms suggested cancer. A correct diagnosis was made in each case.

The authors object to Lee and Blair's inclusion of traumatic fat necrosis of the female breast as a distinct clinical entity. They regard it as a lesion (lipophagic granuloma of the breast, pleomorphic xanthoma, etc.) as manifestations of the same pathological process, viz. granuloma of the tissues. In the breast a lipophagic granuloma acquires greater clinical importance because it resembles the common type of breast cancer. W. A. B.

## TRACHEA LUNGS AND PLEURA

Heuer G. E. Empyema of the Pleural Cavity. *Am Surg* 9 31 7

One of the most important factors in the cure of acute empyema and the prevention of chronic em-

pyema is early recognition of the condition. In Heuer's opinion empyema is frequently overlooked by the general practitioner. In 50 per cent of a series of 425 cases seen at the Johns Hopkins Hospital, Baltimore, the condition had not been promptly recognized or not properly treated.

The mortality of empyema depends upon many factors. In children under 2 years of age Heuer finds the mortality 39 per cent. Between the second and fifth years it is 6 per cent, between the fifth and tenth years 16 per cent, between the eleventh and twentieth years 12 per cent, from 21 to 50 35 per cent, and after 50 8 per cent. In empyema following pneumonia it is 11 per cent, in tuberculous empyema 43 per cent, in postoperative empyema 42 per cent, in empyema following injury 33 per cent, in empyema due to a miscellaneous group of infections 40.5 per cent.

The type of organism is also of importance in the mortality. The mortality due to the pneumococcus is 50 per cent, that due to the streptococcus pyogenes 22.5 per cent, that due to the streptococcus hemolyticus 55 per cent, that due to the staphylococcus 1 per cent, and that due to the influenza bacillus 16 per cent. In the presence of complications such as unresolved pneumonia, pulmonary abscess, pericarditis, peritonitis, meningitis, or septicemia the mortality is high. In the author's series in which such complications were absent it was 65 per cent.

Heuer believes that the use of local anesthesia influences the mortality. In a relatively large group of cases in which the empyema was drained and capsulated and the patient is not seriously ill it makes little difference as far as the mortality is concerned.

Heur's air-tight method of drainage, intercostal incision with open drainage, or rib resection with open drainage is discarded. On the other hand, in the cases of patients who are unable to suffer with a unilateral rib resection, the choice of operation of great importance. In such cases the less extensive the operation the better, especially if a soft, non-monopurulent thorax must be prepared. Particular in children marked improvement in the mortality has been noted since the establishment of air-tight drainage or aspiration drainage. In the series of cases studied the use of Dakin's solution in the postoperative treatment contributed to the good result.

Thompson's technique of empyema is favored by thickening of the pleura in dequadrant drainage. The presence of a new pleural pocket, the presence of foreign bodies, and a lack of postoperative care. Since the use of air-tight suction drainage with thoracostomy tube and suction plus debridement of the avulsion of the thoracic case of acute

empyema has become chronic. In the control of the postoperative course frequent X-ray examinations are necessary.

In the series of cases reviewed the great increase in the percentage of cures in a period of thirty-six days following the Carrel-Dakin treatment is a striking indication of the value of adequate postoperative treatment. This treatment can be carried on best in a hospital; in the last few years the author has refused to discharge a case of acute empyema from the hospital until a complete cure has been effected.

The restoration of the functional capacity of the lung on the involved side is the more complete the quicker the recovery. When the convalescence is prolonged retraction of the chest, thickening of the pleura, fixation of the diaphragm, and a decrease in functional capacity are relatively common.

In chronic empyema the lung does not expand and fill in the cavity because of the adhesions between the pleural layers at the margins of the cavity and because of the thickened, resistant, inelastic pleura. This can be corrected by three methods: (1) the Fowler-Delorme operation, which removes the visceral pleura; (2) the incision of the parietal pleura as described by the author, which severs the union between the visceral and parietal pleura; and (3) sterilization of the infected pleura, which is followed by absorption of the pleura.

In 1920 the author reported several cases in which by sterilizing a chronic empyema cavity he caused an unobliterated cavity to remain sterile and eventually to become obliterated spontaneously by the expansion of the lung. RALPH B. BETTMAN, M.D.

#### MISCELLANEOUS

Deal, D. W. and Palmer, G. T. and Cole, H. H.  
The Indications and Technique for Major  
Chest Surgery. *Ill. o. M. J.* 1923, 1: 39.

The authors call attention to the advances made by modern surgery in the field of thoracic diseases. To illustrate operations they report several cases. A number of instruments devised by them for thoracic operations are described briefly.

In the authors' experience the incision along the seventh interpace is too low for favorable exposure; therefore they make the incision in the sixth interpace. They call attention to the fact that most of the poor results attending operative open pneumothorax are due to the suddenness of the change in the intrathoracic pressure relationships rather than to the change itself. Therefore whenever possible they accustom the mediastinum and the large thoracic vessels to the operative condition by gradually increasing the intrathoracic pressure by means of the usual artificial pneumothorax.

RALPH B. BETTMAN, M.D.

# SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Seelig M C and Chouke K S. A Fundamental Factor in the Recurrence of Inguinal Hernia. *Arch S* 12 1913 553

Becau e of the high incidence of recurrence following operations for the cure of hernia the authors planned experiments to determine whether muscle will unite with fascia. The Bassini operation the standard operation of today has its anatomical basis the suturing of the internal oblique muscle to Poupart's ligament to reconstruct the floor of the inguinal canal. The question arises whether these structures will unite. A number of observers report that they do not as evidence by examination at the time of the second operation.

The experimental study was made on the fascia lata and muscles of the thigh of dogs. The fascia was incised and sutured to the muscle without tension. Various suture materials were employed. Some were purposely soiled to observe the effect that infection would have. In another group of animals the muscle was traumatized and the fascia sutured into the traumatized area. In others fascia was sutured to fascia. The following results are reported.

1. In every instance of clean wound healing the fascia was widely separated from the muscle to which it had been sutured. A very thin and translucent membrane of areolar tissue bridged the gap between the edges of the fascia and the muscle. Although there was no tension on the suture line the nonabsorbable sutures usually cut the way through the muscle and hung in the fascial edge. In some instances there occurred along the suture a reactionary fibrosis indicated by opaque white streaks in the delicate layer of areolar tissue described. It seemed to make no difference whether catgut or silk was used or whether the suture was a continuous or interrupted suture. In wounds that healed by primary union the muscle and fascia would not establish a close union.

2. In every case of wound infection on the fascia was separated widely from the muscle to which it had been sutured. In these instances wound infection the layer of delicate areolar tissue described as usually absent but the reactionary inflammation about the suture was more marked than in the clean wounds. The streaks of heavy connective tissue bridged the space from muscle to fascia. In no instance of simple suture in which infection took place was there a solid sheet of heavy connective tissue uniting the edges of the separated muscle and fascia. In these infected wounds therefore there was neither direct union of muscle and fascia nor even continuous indirect union by a solid unruptured layer of connective tissue.

3. In every instance in which the muscle was traumatized by the excision of a wedge so that the fascia could be sutured in the raw trough there was an attempt at direct union between fascia and muscle. This union was complete in only one instance.

Applying these observations to the usual technique for hernia operation the authors come to the following conclusions.

1. Normal muscle will not unite firmly with fascia or ligament. It is therefore a useless procedure to suture the abdominal muscle to Poupart's ligament in the hope of buttressing a weak or ruptured abdominal wall.

2. Fascia unites easily with fascia.

3. The weak abdominal wall should be strengthened by a method to secure fascia-to-fascia approximation.

JOHN A WOLFER, M.D.

## GASTRO INTESTINAL TRACT

Walton A J. The Chronic Dyspepsia of Women. *La* 1 29 3 1913 1333

The chronic dyspepsia of many years duration may resemble superficially but not essentially any organic disease of the stomach duodenum gall bladder pancreas or appendix. Eighty per cent of the subjects are females.

A typical case of chronic dyspepsia is that of a woman between 20 and 30 years of age who since her twelfth to fifteenth year has had more or less continuous severe epigastric pain which passes around to the back, is increased by food and exercise comes on after meals become worse in the evening and is sometimes relieved by lying down. The appetite is poor and at times vomiting occurs. During severe attacks there may be hematemesis. Another complaint is marked constipation. Because of dieting and limited food intake there may be considerable loss of weight. The patient has a foul breath a distended abdomen with flatulence of mentation. Extreme cases may show the ptosis habitus.

The definite pathology of the condition consists of localized abnormalities in the intestinal tract changes in the general body structure and alterations in the nervous system. The localized changes in the intestinal tract include abnormal mobility and general dropping of the colon. Lane linked the band extending from the ileum near the cecum to the posterior abdominal wall. Jackson's membrane consists of band from the cecum and ascending colon to the right parietal wall. The mesocolic fold due to bands about the duodenojejunal junction membrane from the liver to the duodenum or the hepatic flexure of the colon. Toldt's membrane which binds the pelvic colon to the left iliac fossa.

and Payr's membrane. These membranes and bands are often found accidentally have been discovered in young children and in the fetus and are doubtless congenital. They usually do not give rise to symptoms until ptosis occurs.

In virginal types of chronic dyspepsia the patient is thin, poorly nourished, poorly developed and tall. The tissues are soft and relaxed, the chest and epigastric angle are narrow, the dorsal curvature of the spine is exaggerated, the lumbar curve is absent, the waist is long, and the pelvis appears too wide for the body. Flat feet, genu valgum and scoliosis may be present. The maternal type is characterized by relaxation of the abdominal wall due to numerous pregnancies, visceral ptosis, rounding of the shoulders with absence of lumbar lordosis, and the symptoms of hysteria and general melancholia.

Occasionally in apparently bright healthy athletic girls the ptosis and intestinal changes are recognized only at operation or X-ray examination. Fifty per cent of persons show a mobility and abnormal membrane formation which would usually be regarded as abnormal. Hence it appears that other factors such as general loss of muscle tone and postural defects are necessary before symptoms result. Persons with poor mental capacity are more apt to have a loss of muscle tone than those of good mentality.

The treatment is primarily medical with attention to physical exercise, rest, general hygiene, dieting, etc. A surgical procedure cannot be expected to relieve the postural defect, the general bodily and mental changes, and the numerous local intestinal conditions. However, when the majority or the most aggravating of the symptoms pertain to one focus such as the stomach, the caecum, or the ascending colon, operative interference on that particular structure may give relief though it may not cure. The operative release of membranes and bands that kink or obstruct and the ligation of various abnormally mobile structures should be followed by medical treatment and the wearing of an abdominal binder. Resection of portions of the intestinal tract is becoming more and more limited. Resection of the colon has a high mortality and is not justifiable on any condition which will not in itself lead to death.

WALT C. BUCKLEY, M.D.

#### Nakamura T. Fecal Infection in Ulcer of the Stomach

159419

Streptococci usually in large numbers were found in the tonsils constantly throughout the viridans group usually predominating in incidence and number.

Dilated crypts believed to be the result of fibrous adhesions and filled with pus containing numerous streptococci and other bacteria were found in the tonsils of many patients having ulcer of the stomach and arthritis. The alveolar fluid of the tonsils of glucose brain broth which affords a gradient of oxygen pressure is shown by the fact that platings from fifteen hour cultures in this medium often gave pure cultures of streptococci whereas direct platings

of pus from the tonsil yielded streptococci, staphylococci, micrococcus catarrhalis and other bacteria.

The lesions in the stomach and joints not only occurred in a higher percentage of animals but also were more marked following the injection of the respective specific strains than following the injection of non-specific strains. In the case of the arthritis strains a larger number of joints were involved.

The findings in the ulcer experiments resembled those in the spontaneous disease in man. The animals with ulcer often appeared well, the location of the experimentally induced lesions and the number of organisms in the deep layers of the margins of the ulcers were similar to those in patients.

In many respects the findings in the arthritis experiments also resembled those made in cases of arthritis in patients. The joints most markedly attacked showed erosion of synovial and cartilaginous lining, there was usually extension to the periarticular structures, the free fluid contained few streptococci or none. Both in animals and man the large joints subjected to the greatest stress and strain were those most frequently involved. Specific lesions developed only following the injection of small doses of the streptococcus from the pus expressed from tonsils *in situ* and from small quantities of the broth culture.

The virulence of both the ulcer and the arthritis strains was low. Most of the animals apparently remained well after the injection, and the blood and non-specific organs soon became sterile. Because of this and the marked stimulation of antibodies, healing began early. No doubt frequently repeated onslaughts such as we have reason to believe occur over long periods through chronic foci of infection are often necessary for the development of chronic ulcer of the stomach and arthritis.

The demonstration by Davis and Wood of streptococci passing the epithelial lining of crypts in tonsils and the fact that Rosenow and Meisser produced urinary calculi by causing devitalization and infection of the pulp cavity of teeth in dogs with streptococci from nephrolithiasis leave no doubt that invasion may occur from chronic foci. The bacteria in the tonsils and other foci of infection and their toxic products are considered to be always in conflict with the defensive mechanism of the host. Fluctuations in virulence from exposure to cold or other causes occur, peculiar invasive power may be acquired and for mechanical reasons may afford abundant opportunity for entrance of the living bacteria and their products.

The characteristics of the streptococci isolated were variable. The organism was subject to the medium in which it existed and appeared in short or long chains. Its fermentative power while often persistent was affected by the medium, its virulence varied and on subculture and animal passage its power of attacking certain tissues was often variable. For example, a pure culture of hemolytic streptococcus was obtained at autopsy from the

blood of a person who was found to have had acute ulcer of the stomach and duodenum as a result of extensive burns of the third degree. In two rabbits into which it was injected the primary culture produced marked hemorrhage of the stomach but the fourth daily subculture in glucose brain broth which was injected into three rabbits caused hemorrhagic ulcer in only one animal and the sixth subculture which was injected into two rabbits had no effect on the stomach in either animal.

The author's findings with regard to the importance of foci of infection and elective localization of streptococci in arthritis and ulcer of the stomach the lack of elective localizing power of control strains the labile character of the property on which the elective localizing power depends especially in cultures with a high oxygen tension and the need for strict attention to technical details in elective localization studies are in agreement with those of Rosenow.

The conclusions drawn are as follows:

The tonsils of persons suffering from ulcer of the stomach and arthritis commonly harbor streptococci which when injected into animal tend to localize respectively in the mucous membrane of the stomach and in the joints and to produce ulcer and arthritis. This is not true of streptococci in the tonsils of normal person. Hence it may be concluded that foci of infection harboring streptococci having elective localizing power are important factors in the primary causation and the persistence of ulcer of the stomach and arthritis. T. NARAMURA, M.D.

Stewart M. J. The Pathology of Gastric Ulcer. Part I. The Etiology of Peptic Ulcer. Part II. Pathological Observations on Gastric and Duodenal Ulcer. *B. M. J.* 9, 3, 955, 1913.

The author divides his discussion of the etiology of peptic ulcer into two parts: (1) the cause of acute ulcer and (2) the factors leading to the persistence of such ulcers.

In the first part he considers factors causing injury of the gastric mucosa and the digestive action of the gastric juice. He reviews the various theories which have obtained in years past: (1) the theory of vascular blocking by embolus or arteriospasm; general factors including chlorosis and other types of anæmia and injury by chemical or physical agents. He believes that all of these are to be greatly discounted and that the most probable theory is that of bacterial infection as shown by the work of Rosenow. He reviews the work of Rosenow emphasizing the importance of the selective action of certain strains of streptococci which have a low virulence and have been found to produce ulcers in experimental animals.

The action of the gastric juice is another factor of importance. The work of Bolton who controlled the incidence of experimental gastric ulcer by controlling the supply of gastric juice and of others is reviewed. Bolton showed that acute ulcer is produced more easily and is more extensive in the digesting than in the resting stomach. Experimental work

by Mann and Williamson showed that duodenal ulcer is more easily produced in experimental animals by diverting the normal neutralizing duodenal contents and allowing the duodenal mucosa to be constantly bathed by the acid gastric contents. A hyperacid gastric juice will more readily produce an ulcer than a gastric juice of normal acidity. Hurst's hypersthenic gastric diathesis may be a predisposing factor. Hurst stated that perhaps to percent of all normal persons exhibit hyperchlorhydria and gastric hypertonicity and that under such circumstances the duodenal cap is bombarded by acid gastric juice for several hours a day.

As in all experimental ulcers the greatest difficulty is experienced in preventing the occurrence of healing an experimental chronic ulcer is difficult to obtain. Bolton noted that in cats a meal at a diet delayed the healing process more than a milk diet. This he explained on the basis of the long retention of meat in the stomach and the greater secretion of gastric juice induced by it. By causing mechanical constriction of the duodenum in cats Bolton established a definite delay in the healing of gastric ulcers.

If the results of these experiments can be applied to man a relationship between delayed emptying of the stomach and delayed healing of gastric ulcer is suggested. Reflex pyloric spasm with retention of the acid contents and prevention of the normal regurgitation of alkaline duodenal contents will favor chronicity. The clinical effect of this in controlling gastric ulcer is generally admitted and in this connection the mechanical evidence of poorly masticated food and protoplasmic poisons such as vinegar may be mentioned.

Acute ulcers are distributed widespread in the gastric mucosa but chronic ulcers tend to occur on the course of the original gastric tube—that is, near the lesser curvature. This indicates that there are probably other factors in chronicity. These may be the comparative fixity of the lesser curvature and the greater degree of trauma and friction in this area.

In the case of the duodenum the retention of highly acid juice in the duodenal cap for long periods is probably important in the conversion of a acute ulcer into chronic ulcers and would account for the fact that chronic ulcers usually occur in the first part of the duodenum while acute duodenal ulcers are widely distributed.

The second part of the article is a complete discussion of the pathology of gastric and duodenal ulcer based upon a series of 1,500 autopsies and 100 operated specimens.

In the author's opinion the relative frequency of chronic gastric ulcer and chronic duodenal ulcers is 3 to 4. This is in marked contrast to the deductions of other observers. The scars of healed gastric ulcers are found slightly more frequently than those of duodenal ulcers and more than 0.45 percent of the cases associated lesions of the stomach and duodenum are present.

Before the age of 20 years acute ulcer is infrequent and chronic ulcer rare. Ninety per cent of the cases of chronic gastric ulcer and 84 per cent of those of chronic duodenal ulcer coming to autopsy were those of persons between 30 and 69 years of age. The highest incidence of gastric ulcer is between the ages of 40 and 60 years. Chronic gastric ulcer occurs rather later in life in males than in females. Chronic gastric ulcer is slightly more frequent and chronic duodenal ulcer six times more frequent in men than in women.

Ulcers are divided into acute subacute and chronic varieties. The chief differentiation lies in the presence or absence of fibrosis but an active acute ulcer shows neutrophilic infiltration in its floor and slight edema. Acute exacerbations of chronic ulcers exhibit these also but they are always localized at a certain point in the floor. Chronic ulcers show in addition lymphocytic infiltration near the blood vessels with plasma cells. The floor of all ulcers frequently contains eosinophiles. The small vessel in the floor of the acute ulcer are often filled with thrombi or fibrinous plugs. In chronic ulcers the vessels may show endarteritic and endothelial thickening.

Acute ulcers are multiple and widely and irregularly distributed. They vary in size but the majority are less than 4 in in diameter. They have a punched-out appearance and are shallow, involving at the most the mucosa and submucosa. Acute penetrating ulcers are terraced because of penetration over a lesser area of the muscular coat. Acute perforated gastric ulcer is very rare. All such ulcers tend to heal readily, the amount of fibrosis and scarring is dependent upon the involvement of the muscular coat. Chronic gastric ulcers are single but may be accompanied by acute ulcers. Double chronic duodenal ulcer is fairly common. Most chronic gastric ulcers occur along the lesser curvature but seldom exactly at the pylorus.

In the series of cases studied all chronic duodenal ulcers were in the first part of the organ and a most half were double lesions anterior and posterior. Chronic ulcers have thickened rounded and overhanging margins in the active stage and flatter margins when they are quiescent. When they are active they show a narrow zone of sloughing in the floor which consists of an intensely eosinophilic structureless growth and represents a necessary preliminary to the healing of the ulcer. All chronic ulcers penetrate the muscular coat. Perforation is prevented by fibrosis, the adhesion of adjacent viscera and pads of fat derived from the omentum.

The healing process in acute and chronic ulcers is similar. Following the separation of the slough marginal epithelium grows inward and fibroblastic contraction in the floor reduces the size of the lesion. The slow healing of chronic ulcers is due to the extension of the ulcer into the floor. The results of healing depend on the site, chronicity and situation of the ulcer. Ulcers near the pylorus easily cause cicatricial stenosis. In the body of the stomach only large

ulcer cause hour-glass stomach. Duodenal ulcers affect the pylorus only when they are situated within 1 in of it.

The author discusses the complications in an analysis of 350 fatal cases. The most serious and one of the most common complications of all types of ulcer is perforation. This rapidly follows sloughing of a part or all of the peritoneal floor due to a slow progressive devascularization. In the stomach perforation usually occurs on the anterior wall near the lesser curvature. Duodenal perforation which is more common also occurs as a rule on the anterior wall.

Fatal hemorrhage is usually caused by a chronic ulcer and more frequently by duodenal ulcer than a gastric ulcer.

In discussing the development of malignancy in chronic ulcer the author states that 10 per cent of all cases of simple chronic ulcer coming to operation have developed cancer in the ulcer and one half of these malignancies were unsuspected at the time of operation.

The article is concluded with a discussion of the development of jejunal ulcers at the site of gastroenterostomy. In the series of cases studied there were four such ulcers following thirty-four operations and in every case the operation was done for duodenal ulcer.

PAUL R. BILLINGSLEY, M.D.

#### McGee, J. A. Acute Perforated Ulcer of the Stomach. *J. Surg.* 924, 1919, 91.

The operative treatment of acute perforated ulcer of the stomach and duodenum is still a debated question. Some surgeons claim that simple closure is sufficient; others that a more radical procedure usually gastroenterostomy is necessary. The advocates of simple closure claim that perforation cures the ulcer and that more radical treatment increases the mortality, may spread the infection in the peritoneal cavity, is never satisfactory, and may be followed by reperforation, hemorrhage, stenosis, or jejunal ulcer. Surgeons in favor of more radical treatment than simple closure claim that perforation alone does not cure the ulcer in a number of cases; that if the case is properly chosen the more radical treatment does not affect the mortality; that the danger of spreading infection is of theoretical rather than practical importance; that while gastroenterostomy is not always successful in relieving symptoms or preventing complications it is successful in such a large percentage of cases that there can be no longer any doubt as to its specific effect; that suturing narrows the lumen and the operation safeguards against secondary perforations and subsequent stenosis; and that the incidence of jejunal ulcers is extremely low.

Between October 1, 1919, and August 1, 1923, twenty-five cases of acute perforation of gastric or duodenal ulcer were treated on the first division of Bellevue Hospital, New York. Vomiting occurred in 40 per cent of the cases of duodenal ulcer and in 80 per cent of the cases of gastric ulcer. Obliteration



tion of liver dullness was noted in nine of the twenty-five cases. Shock was an unimportant factor.

Operation was performed in all but one unrecognized case. In this instance perforation was preceded forty eight hours by a massive hæmorrhage was accompanied by a second severe hæmorrhage and was followed by death in three hours. In all there were seven deaths a mortality of 28 per cent. In the ten cases of duodenal ulcer there was no death and in the fifteen cases of gastric ulcer there were six deaths mortalities of 10 and 40 per cent respectively.

Closure of the perforation was the first step in all but one case that of a man in desperate condition in whom only pelvi peritoneal drainage, as done under local anaesthesia. In the nine other cases of duodenal ulcer simple closure was done in five and closure and gastro-enterostomy in four. The indications for gastro-enterostomy are (1) good condition of the patient (2) the presence of infiltration extending well beyond the limit of perforation and (3) apparent stenosis due to closure of the perforation.

Of the fifteen gastric perforations nine were at or near the pylorus and six in the fundus. Of the cases of pyloric ulcer eight came to operation. Immediate gastro-enterostomy was done in two. The six others were treated by simple closure. The six ulcers of the body of the stomach were treated by closure alone. Drainage was employed in early cases with steadily diminishing frequency. It was limited to the abdominal wall and was done only when there had been extensive soiling of the peritoneum with contamination of the abdominal incision. J. H. D. M.D.

Kusmin S S Complications Following Opera  
tion for Ga tric Ulcer (Postope at e K mplik  
t o n n ch Op r t t n n w g n Ulrus ntri ul )  
I ha d d R s Cl r K g P t grad 19 3

This article is based upon 135 cases of ulcer operated upon during the last 10 and a half years on the service of Hesse at St. Trinities Hospital, Petrograd. Forty-two of the operations were resections of the stomach, seven were gastroduodenostomies and six were pyloric exclusions by the von Eiselsberg method. There were twenty nonfatal and twenty-one fatal complications.

To lessen the danger of the operation it was when possible performed under local anaesthesia two resections and twenty on gastro-enterostomies were thus performed. Ninety per cent of the most recent gastro-enterostomies have been done under local anaesthesia. Only five of the twenty one deaths occurred in cases in which local anaesthesia was employed.

The twenty non fatal complications included

1. Infarction of the right lung and thrombophlebitis of the right femoral vein on the fourteenth day after a sternal osteomy in the case of a patient with chronic endocarditis. The latter is to be regarded as the cause of the complication.

**Hæmorrhage** This occurred in three cases after gastro-enterostomy and in one after resection. In the latter Kravkov's remedy fluid extract of polygonum hydropiper was used with success.

3 Hemorrhage from the right kidney (confirmed by cystoscopy) on the tenth day after a Billroth I resection. This complication is very rare and suggests anastomosis between the vessels of the kidney and those of the gastro-intestinal canal.

4 Separation of the margins of the wound. This occurred in three cases on the seventh or eighth day.

The fatal complications are summarized in the following table:

| Operation                        | Complex with  | Cases | Time of day          |
|----------------------------------|---|-------|----------------------|
| Cut on my                        | Art rames d   |       | day                  |
| Gas rose rest my                 | S d I on I up m li<br>es th I<br>t no ram soe I<br>ac m se I ra<br>m          |       | 5th day              |
| Rise in                          | Shook   |       | I how<br>day         |
| Gas on y                         | Chl rol m po so in  | 3     | nd day<br>to s d day |
| Reset d ro                       | P to  | 5     | nd day<br>d y        |
| I set b g pers<br>on             | I ro ce   |       | 1st day              |
| C row my<br>on E berg<br>pers so | Pos opera<br>m  | 5     | 3 d th do            |
| Gas rose ro my                   | Ac fib us ce h  |       | 6 h day              |
| C ro my<br>G out m               | F li la dgr tla<br>pura para I<br>d g ra so I ta<br>r n l ga<br>m t b nio h g |       | nd d<br>6 h d        |
| G ro ro my                       | I roun h  |       | th day               |

These severe complications were due in part to the unfavorable conditions under which the operations were performed in 1919-1920: the low temperature of the operating room and ward, poor chloroform etc. At present, with improvement in conditions, the incidence has been very greatly reduced. The rarest and most interesting complication was the strangulation of the small intestine in the postoperative strangles colic mesenteric (ramen which is artificially produced in all cases of gastro-enterostomy) by the apposition of the small intestine to the stomach and mesocolon. For this reason this artificial cleft should be closed by suturing the mesocolon to the mesenteric of the small intestine. (Schlafer 1921)

Eusterman G B Recurrent Ulcer of the Stomach and Duodenum Clinical Notes on Incidence Diagnosis and Etiology *Massachusetts Medical Society* 1903

In cases of recurrence of distressing or painful gastric symptoms after gastro-enterostomy, further possibilities must be borne in mind by diagnosticians and surgeons. In the role of the frequency these are (1) reaction to the original pathology healed or unhealed (leaky), (2) stricture or anastomotic leak.

(3) the formation of a new or recurrent ulcer in the stomach or duodenum and (4) carcinomatous changes in gastric ulcer

Between 1905 and 1922 inclusive thirty seven patients with recurrent gastric or duodenal ulcer were examined in the Mayo Clinic. Thirty three of these were subjected to a second operation. Nine of them were women. During the same period of time approximately 7000 operations for chronic gastroduodenal ulcer were performed. Obviously therefore the complication under discussion is rare.

The cases were classified in three groups: (1) eight cases in which gastric ulcer had apparently developed after successful gastroenterostomy for duodenal ulcer; (2) eighteen cases in which gastric ulcer had recurred following primary operation for gastric ulcer; and (3) eleven cases of duodenal ulcer recurring after operation for duodenal ulcer. Six of the patients in Group 1 had evidence of marked focal infection in the teeth and tonsils. In thirteen of the patients in Group 2 there was advanced perianal disease, pyorrhea or tonsillar sepsis or some combination of such foci. All of the patients of Group 3 had hyperacidity. In six there was definite retention with hypersecretion. Five of the latter had had an excision with or without a plastic operation.

With few exceptions the symptoms engendered by the recurrent lesions are identical with those of the original complaint.

According to the most tenable theory infection is the predisposing and causative factor in recurring ulcer. This is corroborated by the large percentage of demonstrable foci of infection in the series of cases reviewed in this article. Other predisposing causes are bulky indigestible food hastily and heartily eaten too soon after operation, nervous strain, fatigue, climatic exposure, respiratory infections, and the immoderate use of tobacco, alcohol and condiments.

It follows therefore that recurrence may be greatly minimized by the routine removal of all demonstrable and suspected foci of infection, by the avoidance of the predisposing factors enumerated, and by postoperative diet and alkalination of the markedly hyperacid cases.

GEORGE B. ELTERMAN, M.D.

L. Wald L. T. Syphilis of the Stomach. Roentgen Appearance Before and After Treatment. *Radiology* 9:3-93.

In certain cases gastric syphilis may cause a symmetrical dumb-bell deformity of the body of the stomach. When it causes a generalized fibromatosis the stomach has a tubular appearance. If the fibrotic process is localized the roentgen picture is similar to that of gastric carcinoma. If the process is situated at the pylorus like that of gastric ulcer an hour-glass deformity similar to the deformity produced by ulcer may result from perigastric adhesions of syphilitic origin. The absence of the cachectic appearance of malignancy and the presence

of a positive Wassermann reaction help to establish the diagnosis.

After several years of active antisyphilis treatment the deformed stomach may become almost normal in contour. Conservative surgery such as gastroenterostomy is a valuable adjunct in the treatment and is not apt to be followed by complications.

CHARLES H. HEACOCK, M.D.

Moore A. B. A Roentgenological Study of Benign Tumors of the Stomach. *Am. J. Roentgenol.* 19:4-161.

The author studied the roentgenological findings in twenty-three cases of benign tumors of the stomach which were operated on at the Mayo Clinic. There were two adenomyomata, two leiomyomata, seven fibromyomata, three simple myomata, one dermoid, two cases of polyposis, one single polypus, and five hamangiomas. In more than half of the cases superficial ulceration was present. The growth was situated in the cardiac end of the stomach in two cases, in the middle portion of the stomach in seven, and in the pyloric portion in twelve. In one case of polyposis practically the entire stomach was involved, while in the other the lesions were localized in the lower two thirds. The lesion was on the posterior wall in nine cases, on the anterior wall in seven, on both wall in two, and on the greater curvature in two. In the record of three cases the exact location was not given. The tumors varied in size from a large dermoid weighing 1000 gm. to a very small polypus about 2 cm. in diameter.

In five cases the symptoms simulated those of carcinoma of the stomach; in four they simulated those of ulcer, and in ten were indefinite. In four cases the principal or only complaint was hæmorrhage from the gastrointestinal tract. Eleven patients had had either melæna or hæmatemesis. Gastric retention occurred in three cases.

A review of the cases shows that benign gastric tumors manifest certain X-ray signs which differ from those in malignant or inflammatory lesions.

1. They produce a filling defect that is circumscribed and punched out in appearance.

The filling defect is usually on the gastric walls, the curvature remaining regular and pliant.

3. While the rugæ in the immediate area of the tumor are obliterated, just as in malignant and inflammatory lesions, those surrounding the tumor are more nearly normal in their arrangement and distribution.

4. They cause little or no disturbance in peristalsis, and retention is uncommon except when the lesion is at or very near the pylorus.

5. They do not reveal a niche, nor is there any incisura or other evidence of spasm.

6. They are rarely sufficiently large to be palpated.

While there are no roentgenological signs that are pathognomonic of benign gastric tumors, these findings are strongly suggestive of their presence, and when they are noted the roentgenologist should

hesitate to report the lesion as malignant and inoperable especially if the clinical manifestations are indefinite

J D CAMP M D

Gosset Loewy and Bertrand A Pedicled Tumor  
of the Stomach (Tumeur pédiculée de l'esto-  
mac) *Bulletin de la Société de Chirurgie de Paris*  
1882

The patient a man age 45 years had never suffered any gastric disturbance other than moderate eructations which were relieved by alkali. Suddenly on May 21 1923 he passed flaccid mixed with a black (melan) material. Three days previously he had noted light fatigue and fever. The melan persisted for four days and caused prostration and weakness. X-ray examination in the erect position showed a J-shaped stomach to the left of the median line with the pylorus drawn toward the right. There was no deformity of the lesser or greater curvature the emptying time was regular and the duodenal cap was filled. In the horizontal position the lesser curvature revealed an irregularity in its center which was not affected by peristalsis. Palpation of the lesser curvature caused pain. Repeated X-ray examinations made from May to September demonstrated persistence of the deformity.

On July 15, 1923, another intestinal hæmorrhage occurred. Thereafter the stool contained blood constantly.

The patient was placed on a diet and because of a positive blood Wassermann reaction was given arsenical treatment. In spite of a good appetite and freedom from pain and vomiting he progressed slowly, lost weight and strength.

Opened through an upper incision revealed a black lobulated tumor measuring 5 cm which was implanted on the lesser curvature of the stomach. The growth was removed together with the wall of the stomach where the base of the pedicle was attached. There were no ulcerations of the gastric mucous membrane but two perforations of the stomach wall leading into the interior of the tumor. The stomach wall was sutured with silk. The contiguous perforations were sutured apart to the normal gastric mucous membrane. The tumor was violet red and extremely soft and consisted of collie like gelatinous transparent masses. The macroscopic diagnosis was leiomyoma. In the microscopic examination the tumor arose from the smooth muscle of the parietal sympathetic system of the lesser curvature. W. L. C. I. 1927. 111

WATT C I TRUST ME

Hartman n. Pyloric Cancer (a tropicore  
 tomy Cure De elong nt of a Secondary  
 Cancer of the Stomach Three Years Later in the  
 Absence of Demon trable Recurrence in the  
 Stomach (n) Large r u g n o t o b r e e  
 t m e g u e u y u p e r e e t e n a s t u r e f  
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A woman sister of truth b r to e hall  
years prev usl wa subjected to a Billroth II

operation for pylorogastric cancer developed a secondary growth in the right breast with enlargement of the glands in the axilla and subcuticular space and swelling of the right arm. There was no definite disturbance or alteration of the general condition to indicate a local recurrence or a pathologic general metastasis. However, a histological study of the rapidly extending breast tumor by Mettner showed characteristics manifest secondary when lesion treated that the tumor was a late development of a graft of gastric cancer at the level of the breast.

The author considers the case unique because of (1) the exceptional site in the breast of a metastatic gastric cancer, (2) the late appearance of the metastasis and (3) the absence clinically of local recurrence.

W. LEE C. HICKS, M.D.

W. LEE C. DEKOSTER, M.D.

Koennecke W Spatische Neu (Spatische Neu  
W h mrd li k k 1021 125 08

The author reports eight cases from the Coet tungen clinic. Six of the patients were men. 5 were in the sixth decade of life. 4 cases resemble an obturator ileum more than a strangulation ileum. The onset is acute or subacute and the picture is typical of occlusion with retention of gas and vomiting. The findings are rigidity of the intestines with peristalsis, metallic noises, meteorism and a palpable liver. The pulse is usually accelerated but the general condition is on the whole not greatly disturbed. At operation a circumscribed intestinal palsy is found. This may be a single or a local or a considerable extent or multiple in distribution. It may be present in the large or the small intestine. The sigmoid and the descending colon are affected very frequently. The prognosis is not unfavorable in all of the author's cases. Simple laparotomy was sufficient to effect a cure. However the literature contains reports of cases in which it was necessary to establish a fecal fistula.

Thus a se of the con li n t obscure In th i t  
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Andrews E Duodenal Hernia—A Misnomer  
S & Gy & Olst 1923 740

Moynihan gives nine fossae about the duodenojejunal juncture (1) the superior duodenal (2) the inferior duodenal (3) the paraduodenal (4) the mesocolic (5) the mesenterico parietal (6) the posterior duodenal (7) the recessus intermesocolicus transversus (8) the duodenojejunal and (9) the infraduodenal Nos 1 and 2 or their combination are said to be the anlagen for left duodenal hernia No 5 that for mesocolic hernia and No 4 that for right duodenal hernia It seems generally agreed that these small peritoneal pouches are the starting points of the large hernia Treitz states that the factors essential for left duodenal hernia are the presence of a fossa and its boundary folds the presence of the inferior mesenteric vein in the fold and freedom of movement of the small intestines which allow them to enter the hernial sac Moynihan believes that the gradual increase in the size depends on the laxity of the retroperitoneal tissue and the extensibility of the peritoneum

The author does not accept these theories of the mechanism of development of duodenal hernia Facts seeming to disprove them are that the pressure in the general abdominal cavity can never rise higher than that in the pouch that there are hundreds of similar or larger folds which do not cause hernia that usually the herniation is total or subtotal that duodenal hernia have been found in the newborn that the contents of the hernia are always the small intestine never the omentum and rarely any viscus (in one case reported the sac contained a few inches of the large bowel) and that the contents of the sac generally adhere together

Andrews believes that duodenal and also pericæcal hernia are simply and rationally explained on the basis of congenital anomalies in the development of the peritoneum Duodenal hernia he claims is due to the imprisonment of the small intestine beneath the mesentery of the developing colon If the rotation of the umbilical loop was not completed possibly because it remained outside of the body too long or became involved in the opposite twisting of the cord or if the persistence of the allantois prolonged the cæcum would be superior to the small intestine and upon growing toward the right the small bowel would become caught in the mesentery of the colon When the mesentery became adherent to the right posterior abdominal wall the imprisonment would be complete The sac located on the right of the duodenum with the superior mesenteric and ileocolic arteries in the free edge of the anterior fold of the neck of the sac could form a right duodenal hernia Left duodenal hernia is merely a higher degree of the same process The hernial sac is to the left of the duodenum and the free edge of the sac contains the inferior mesenteric artery and vein between which lies the hernia The umbilical loop has not rotated or has rotated in the wrong direction the cæcum is at first to the right of the midline in the lower abdomen with the colon extending directly to

the rectum As the colon lengthens it forms a loop When the cæcum seeks its primitive position in the left upper quadrant the small intestine is caught beneath the mesentery of the descending colon The inferior mesenteric artery lies in the free edge of the sac with the vein above

In 1906 Moynihan collected seventy four cases of duodenal hernia fifty seven were left and seventeen right The author adds to the Moynihan group twenty one cases Since 1906 Andrews has collected analyzed and tabulated sixty one cases of which thirty four were operated upon with a mortality of 34 to 50 per cent In some cases adhesions prevented any attempt at reduction In a few patients the symptoms were incidental and did not warrant radical treatment In most cases the reduction proved difficult The ring cannot be enlarged because of the blood vessel Loosening of bowel adhesions has resulted in tearing the intestinal wall and requires considerable handling of the intestine which causes intense shock Fatalities were due generally to peritonitis or shock Only one case was diagnosed before operation

In most of the cases there were no symptoms and the condition was discovered accidentally at post mortem examination or during laparotomy for some other condition In the cases with symptoms there was usually a history of several crises of acute ileus with shock collapse vomiting tympanitis and obstipation A palpable mass was noted in only a few cases This was of varied size but was usually on the left side

WALTER C BURRAT M D

Cotte and Carrive Chronic Occlusion of the Duodenum by a Mesenteric Band in a Case of Gastrotroposis Cure Effected by Duodenojejunoscopy Secordary to Gastro Enterostomy (Olivier) *Ann. Ch. Fr.* 1918 10: 101

The authors report the history of a patient who first complained of vomiting and gastric distress in 1918 following gas poisoning Since then he had been free from symptoms for only three short periods X ray examination revealed a dilated and distended stomach and slight ptosis of the colon A regime of rest in bed diet and alkalies gave no relief

In anterior gastro enterostomy was performed but the attacks of vomiting continued The vomiting was preceded by a feeling of epigastric tension and nausea The vomitus was liquid and very abundant it contained not only material recently ingested but also the products of gastric duodenal and hepatic secretion X ray examination showed the anastomosis to be functioning normally Exploratory laparotomy revealed a mesenteric band strangling the duodenum The duodenum to the right of this band was greatly dilated A cure was effected by a duodenojejunoscopy

LOYAL F DAVIS M D

Vanderhooft D and Davis T D Chronic Occlusion of the Duodenum in Visceroptosis Based on a Study of Twenty Eight Cases *V & J M Jk* 1923 1, 591

In the area where the duodenum is crossed by the mesentery and its blood vessels it is normally slightly constricted. Just posterior to this point the aorta and vertebral column form an unyielding surface which acts like one lever of a nutcracker. Anteriorly the firm mesenteric vessels form the other lever. It is obvious that any unprotected downward drag on the mesentery and its contained vessels will tend to close these levers. This is what occurs in visceroptosis. In the presence of ileal stasis and constipation increased weight is added to the pull.

In the majority of cases there is persistent or recurring vomiting and generally this is associated with nausea. As the obstruction is intrapapillary bile is often found in the vomitus. As a rule this sign appears very soon after the ingestion of food.

Epigastric distress or pain, flatulence and a sense of fullness are common. The pain may be referred to the right costal margin or may simulate that of ulcer.

Constipation occurs in the majority of cases. The stools are normal. The subjects are always under weight and the majority are young females. Vague symptoms of a toxic state such as headache and general weakness are common.

Physical examination reveals little but there may be slight tenderness in the epigastrium and sometimes a sense of resistance above and to the right of the umbilicus.

Careful gastro-intestinal X-ray studies with good technique and vigorous manipulation in an attempt to fill the dilated duodenum will confirm the diagnosis in practically every case. It must be remembered however that the condition is often periodic and if the patient is free from symptoms at the time of the examination no abnormality may be observed.

In the treatment the first essential is rest in bed in the prone position with the foot of the bed elevated. One hour after each meal the knee-chest posture should be assumed for twenty minutes. In addition exercises to strengthen the abdominal muscles and abdominal massage are beneficial. Measures should be taken to overcome the constipation but strong purgatives should be avoided. The patient should make every effort to put on additional fat.

In the few cases in which these measures fail surgery is indicated. Gastro-enterostomy is useless. Duodenoduodenostomy was first done by Staveland for this condition in 1910. CLAYTON F. ANDREWS, M.D.

Finsterer H The Surgical Treatment of the Non Resectable Duodenal Ulcer. Resection of the Stomach to Exclude the Ulcer (Zur Exstirpation des Duodenalschleimers mit Resektion des Magens). *M. g. sekt. n. ur. A. haltung d. U. u.) W. K. n. H. s. h.* 1923 x xvi 425

The author discusses the question as to the best operative treatment of duodenal ulcer. Ten years ago Kuettner considered simple gastro-enterostomy

the method of choice in cases of stenosing ulcer and gastro-enterostomy with exclusion of the pylorus the method of choice in cases of non stenosing ulcer. Von Eiselsberg preferred unilateral exclusion. Resection of the ulcer is seldom considered. Today the technique of gastric resection has been improved to such an extent that there is little difference in its mortality as compared with that of simple gastro-enterostomy.

In order to obtain healing of a non resectable ulcer irritation from food and hyperacid gastric secretion must be prevented. This is best done by means of von Eiselsberg's unilateral exclusion. If the symptoms persist after this operation they are caused by a peptic jejunal ulcer. The development of a peptic jejunal ulcer is always possible since after total exclusion the hyperacidity persists and the acid gastric juice flows directly over the tender jejunal mucosa without previous neutralization by duodenal secretion and bile. To prevent this the author for the last seven and a half years has combined von Eiselsberg's unilateral exclusion with gastric resection. The results have been excellent and the mortality has been only 16 per cent.

Contrary to von Haberer's opinion the author believes that not the removal of the pylorus but the extent of the gastric resection is of primary importance. The frequency of peptic ulcer of the jejunum is only half as great after resection for exclusion as after gastro-enterostomy. The complaint of small stomach which is always made during the first six months disappears later provided the anastomosis is not too small. The patients so treated have a great advantage over those subjected to gastro-enterostomy in that they can eat all food without exception. Since resection of a duodenal ulcer is technically difficult and associated with danger Finsterer considers resection for exclusion the best substitute. HIRSH, Z.

Renton J M The Relationship of the Jejunum to the Use of Unabsorbable Sutures. *Cl. J. W. M. J. q. 3 n. s. v. 18*

The author performed a series of gastro-enterostomies on rats to learn the fate of non absorbable materials when used in the outer row of Lembert sutures. He studied also specimens from clinical cases. His conclusions are as follows:

1. An unabsorbable Lembert suture tends to work its way into the lumen of the bowel and finally to be cast off completely. During this process it is obviously a source of irritation and infection.

2. It appears that this process occurs even when the mucosa is not penetrated in the insertion of the suture. When the mucosa is penetrated the process probably takes place more rapidly.

3. The evidence that unabsorbable sutures may predispose to jejunal ulcer warrants discontinuing their use.

4. Chromic sutures are entirely satisfactory for the anastomosis and do not hinder complete and permanent healing. CLAYTON F. ANDREWS, M.D.

Cushway B C and Maier R J The Symptomatology and Radiological Findings in Chronic Appendicitis *R d of gy* 1923 1 212

Any one or any combination of the following symptoms may be present in chronic appendicitis tenderness in the right lower quadrant constant or intermittent pain at the site of the appendix pain in other parts of the gastro intestinal tract flatulence constipation hyperacidity retention vomiting haematemesis weight loss malaise and anorexia

The authors believe that there is a definite relationship between the symptoms and the roentgen ray findings Given certain symptoms the roentgen ray findings can be predicted in about 90 per cent of the cases In cases with dysphagia and slight pain or fullness behind the sternum they expect to find a tendency to cardiospasm In cases with regurgitation vomiting and eructation the findings are spasm of the cap and atony of the stomach with stasis In cases with malaise and loss of weight and appetite there is colitis with stasis and spasm of the ileocaecal valve In those with hyperacidity and epigastric pain and tenderness the X ray is apt to show hyperperistalsis pylorospasm and spasm of the cap In those with generalized abdominal tenderness there is usually an extensive colitis

In addition to these findings which are due to reflex spasm there is direct evidence consisting in localization of the point of tenderness in the appendix fixation delayed emptying and the presence of faecaliths

CHARLES H HEACOCK M D

Okinczyk Hartmann Faure and Others Resection of Cancer of the Rectum (Abt cond cancer dure tum) *B ll t em Soc de ls de Par* 923 xl x 1469

This is a report of a discussion on carcinoma of the rectum before the Surgical Society of Paris The debate centered about the abdominal abdomino perineal and perineal routes of operation

OKINCZYK stated that the use of the abdomino perineal route is indicated particularly when the carcinoma is situated rather high in the rectum In such cases abdominal exploration makes it possible carefully to free the tumor mass from the ureters and other contiguous viscera Peritonitis is a rare and cellulitis a common complicating factor in such resections Spinal anaesthesia is preferable to general anaesthesia

HARTMAN prefers to operate by the abdominal route only Through an abdominal incision he resects the upper portion of the rectum closes the open end at the anorectal juncture in the cul de sac and establishes a colostomy LOYAL E DAVIS M D

#### LIVER GALL BLADDER PANCREAS AND SPLEEN

Heyd C G Liver and Chronic Abdominal Infection *A S g* 1914 lx 1 55

Since 1910 Heyd has been particularly interested in a series of gall bladder cases that have exhibited

unusual and peculiar postoperative complications The most common complications which are clear cut and distinct are divided by him into two classes (1) those that occur in the first twenty four hours such as haemorrhage shock gastric dilatation and embolism (2) those occurring in the succeeding forty eight to seventy two hours and due to infection causing peritonitis and later abscess formation

Occasionally following operations on the gall bladder and biliary system and more rarely following gastric or intestinal surgery Heyd has noted three clinical states which cannot be attributed to any of these factors The first occurs in patients who have been subjected to comparatively simple gall bladder operations the surgery having been limited entirely as a rule to the gall bladder and the appendix These patients are obese and have a long history of gall bladder trouble Examination of their blood and urine before operation showed competent renal function Following operation they never completely emerge from the anaesthesia For four to six hours after they are returned to their beds they remain in a semi-comatose condition with carphology and subultus tendinum which finally pass into coma and death

The second condition is different in all of its manifestations As a rule the subjects have had a very severe type of biliary infection and a history of jaundice and previous gall bladder operation Following a choledochotomy with drainage of the common duct the postoperative progress is satisfactory for about thirty six to forty eight hours At the end of that time they become restless and nervous and soon pass into pronounced vasomotor collapse with coldness of the extremities The condition is not associated with gastric dilatation and there has been ample renal function The intravenous administration of glucose and saline solution and the Murphy drip with tap water usually bring about recovery These sequelae the author attributes to the liberation of a pancreatic toxin without adequate liver protection The first group he attributes to a postoperative acidosis incident to the poor metabolism represented by chronic biliary disease plus anaesthesia and surgical trauma

The third condition presents a still more difficult phenomenon in that it occurs in patients who were apparently progressing favorably up to the end of five or six days after the operation In these cases there was a clinical picture of calculous cholangitis pancreatitis or rarely malignancy of the head of the pancreas The icterus had begun to diminish and 20 per cent glucose by Murphy drip had been given to overcome the dehydration At the end of five or six days occasionally ten days when the jaundice is constantly diminishing the patient becomes sleepy passes into coma and dies Some of these cases at operation have shown white bile

Heyd undertook a three fold study (1) a critical study of all organs exposed during the course of laparotomies irrespective of the abdominal condition (2) the removal of a portion of the liver from

both the right and the left lobe when possible. (3) a pre operative and postoperative study of the blood in relation to the known elements of blood chemistry.

In catarrhal types of appendicitis and cholecystitis inspection of the liver revealed a thickening of the capsule with occasional adhesions thickening of the anterior border crenation on swelling and surface dimpling. In localized gall bladder disease the changes in the area of the gall bladder region were more intense than elsewhere and the quality of the change varied inversely with the distance from the gall bladder. Microscopic examination showed subcapsular lymphocytic infiltration on and intercellular infiltration. If there had been an acute inflammation of the gall bladder or appendix leucocytic infiltration would have been merged with lymphocytic infiltration.

When the abdominal condition was essentially chronic the surface changes on the liver became more and more diffuse and there was an increase in the size of the liver. Microscopically the liver changes in the more chronic cases represented an advance in pathological intensity with the chronicity of the abdominal conditions.

In some cases it was apparent that the force of the affection was spent on the originally infected viscera remote from the liver in others that it was exerted mainly on the liver and to a lesser degree upon the viscera. The macroscopic changes included liver hypertrophy sometimes variation in color and the condensation of the capsule the presence of adhesions retraction and crenation of the edges disposition of the fibrous elements over the superior and ventral surface of the liver and an intracapsular increase in the fibrous tissue elements as evidenced in the lessened tendency of the liver to tear. The capsule of Clon was thickened. In a third of the cases there were adhesions between the liver and the anterior abdominal wall. The fibrin and calcium contents of the blood were within the normal limits.

JOHN L. DUFF, M.D.

Schupfer Cholelithiasis with Special Reference to Biliary Infections and Pancreatic Complications (Sull 0 13 a 51 le guardo all of the biliary and pancreatic diseases) Rf m m d 923 u 17

Important factors in the formation of biliary calculi are infections of the biliary passages and changes in the cholesterol contents. As yet however we do not know definitely the primary cause and are unable to explain the arrest of the elopement of calculi or the onset of a biliary colic. Nor has a satisfactory explanation been found for the fact that only certain periods in life are potentially lithogenic. However it is certain that a particular constitution and disturbance of the nervous system are factors that must be considered. Importance must be ascribed to the presence of a morbid state resulting from a persistent low grade toxicity in the blood and to the invasion of bacteria such as the typhoid and

the colon bacillus and in lesser degree staphylococci and streptococci and the organisms of influenza.

Drainage of the duodenum may aid in establishing the presence of infection in the biliary passages but for an accurate deduction patency of the ducts is essential. The presence of bile fluid rich in pus cells and albumin is indicative of infection but no importance is to be attached to the presence of cholesterol, bilirubin and calcium crystal in the duodenal fluid nor to the so called granules of Petri. Draining the duodenal fluid is often of value in the identification of the bacterial flora causing the infection of the biliary passages but often the duodenal fluid is sterile in the presence of a clinically active gall bladder infection. This is due to complete stenosis or occlusion of the ducts which interferes with the passage of the infected contents. Provocative doses of magnesium sulphate or peptone or of hydrochloric acid often stimulate an abundant flow of bile but this cannot always be considered as coming from the gall bladder. Moreover the provocative reflex caused by these substances is rarely observed in the presence of cholelithiasis and its absence is not positive proof of obstruction of the gall bladder.

Bacteriological tests of the duodenal fluid are of greater value in these cases of cholelithiasis provided there is a concomitant hyperchlorhydria or a normal acidity. In cases of hypochlorhydria or achylia it is of value only when the bacterial flora of the duodenal fluid is not the same as that of the stomach. Before definite conclusions are drawn from the bacteria isolated from the duodenum the agglutinative power of the patient's serum on these bacteria should be tested.

Colic and jaundice do not necessarily mean biliary stones. They may be gastroenteric or appendicular origin. The association of biliary stones with gastric ulcers and appendicitis is very uncommon.

The presence of so called biliary gravel in the faeces is of little value in the diagnosis as small sapoaceous substances are often found in the faeces particularly following the use of oil or oil.

Cholelithiasis may interfere with the normal motility of the stomach producing the hyperchlorhydria or a hypochlorhydria or atony of the pyloric sphincter or gastroparesis. In such cases there may be colic attacks of purely nervous origin and these may develop before or after cholecystectomy. Such attacks are more apt to develop in the asthenic type of persons and are in any case analogous to the gastric crises of tabes. In cases of atypical colic attacks it is well to determine the bilirubin content of the blood. In case of colic of biliary origin this appears within a greater rapidity and reaches a greater chromatic intensity whereas when the colic is due to other causes the action of muhormore sluggish and the chromatic change is of transient nature. The value of hypercholesteremia as a diagnostic index is unsettled. A careful examination has not as yet been sufficiently perfected for the diagnosis of all cases of biliary stones.

Cholecystitis may clear up spontaneously. In some cases the biliary passages may become stenotic and contracted to such an extent that deep palpation fails to reveal its presence even during an acute attack. The gall bladder may become necrosed, ulcerated and occasionally perforated. More commonly, however, an empyema of the gall bladder results or in conditions of marked chronicity, hydrops. Not infrequently pyuria on the right side develops during an attack of biliary colic and this manifestation may aid in the diagnosis.

In cholelithiasis of marked chronicity cicatrization and retraction of the surrounding tissue may lead to partial stenosis of the duodenum. Cancer of the biliary passages is not a frequent development following cholelithiasis. Pancreatitis particularly of the chronic type is a frequent complication especially when the stone is in the common duct. These infections localize primarily in the head of the pancreas and spread either through the circulatory system or lymphatics or by penetration through the diseased wall of the duct. Anomalies of the ducts of Wirsung and Santorini may favor the development of a pancreatitis. The diagnosis of chronic pancreatitis depends on the presence of a number of clinical manifestations. At best it is a difficult one. The presence of undigested fat substance in the feces is of doubtful value. Glycosuria is extremely rare in pancreatitis associated with cholelithiasis.

It is possible that in the occasional case of cholelithiasis flushing the duodenum with magnesium sulphate, peptone or hydrochloric acid through a duodenal tube may prove helpful but no substance is known that will dissolve stones in the biliary passages. A gall bladder which on palpation appears enlarged because of infection or the presence of a stone but which causes no symptoms need not be operated upon except in the cases of persons who have repeated infections. Immediate operation during an attack of colic is not necessary unless there are symptoms which indicate that life is in jeopardy. Patients subject to biliary colic without serious complications ought to be treated first medically. Operation need be considered only when medical treatment has failed or attacks of colic appear with increasing frequency or are very severe or in the absence of colic a distressing dyspepsia develops.

Operation is the method of choice in the cases of patients who cannot undergo prolonged medical treatment and who cannot adhere to a strict dietary regime. In no case should operation be postponed too long as severe complications may result. In cases of acute cholelithiasis operation is indicated only when there are grave complications such as empyema or gangrenous changes, otherwise medical treatment is preferable. In chronic empyema operation is always indicated. In acute occlusion of the common duct immediate operation is not necessary but if the occlusion persists and jaundice and fever are marked it is best not to delay operative measures longer than ten days. If fever is absent or slight a delay of from one to two months is best. In cases

complicated by acute or chronic pancreatitis operation is advisable.

Operation is usually contra-indicated by marked obesity, advanced arteriosclerosis, cardiorenal disease, particularly in alcoholics, diabetes and chronic bronchitis but should be performed irrespective of these conditions if the symptoms manifest severe disease of the gall bladder.

Recurrent attacks of pain following operation may be due to stones that were not removed, adhesions, an irritable condition of the upper gastrointestinal tract, an undiagnosed duodenal ulcer or rarely chronic appendicitis. Achylia gastrica noted after cholecystectomy is not a postoperative condition.

JAMES V. RICE, M.D.

Gibbon J. H. The Contra Indications to Cholecystectomy. *Ann. Int. Med.* 1924, vii, 196.

Decker H. R. Recurrent Cholelithiasis. *Illants. W. J.* 1924, xvi, 193.

In the great majority of cases the removal of the gall bladder is preferable to drainage but it is a serious mistake to do a cholecystectomy in the presence of contra-indications. Cholecystectomy is contra-indicated in nearly all cases of normal gall bladder and in the majority of cases of acute infection with jaundice. In these drainage alone is far safer even though a second operation becomes necessary later. In most cases in which stones are found in the common duct or in the common and hepatic ducts or sand or mud are found in the common duct, the gall bladder or its terminal portion should be preserved and drainage established. Cholecystectomy is contra-indicated also in cases of acute pancreatitis with jaundice.

In approximately 8 per cent of cases operated on for disease of the biliary tract symptom return and a secondary operation is necessary. The usual causes of this secondary morbidity are cholecystitis, adhesions and calculi. Calculi are found in 50 per cent of such cases but a true recurrence in only 7 per cent of cases.

The gross character of the stones may indicate whether they are recurrences. The brown soft granular bilirubin stone is usually found in the duct and is apt to be quickly formed while the white faceted cholesterol stone requires a long time for its formation.

The symptoms and findings in cases of recurrent cholelithiasis resemble those of the primary disease depending of course upon the location of the stones and the condition of the gall bladder and ducts. The ultimate prognosis is favorable although the operative mortality is 5 per cent which is two or three times the mortality of primary operations.

The factors responsible for the recurrence of gall stones are infection and bile stasis. Infection favors the formation of stones by precipitating the bile salts and by forming large amounts of mucin while stasis is responsible for incomplete evacuation of bile from the tract and favors precipitation and inspissation of the bile. The presence of the gall





In his early cases McCracken operated immediately as soon as a diagnosis was made. He now treats each case according to its particular indications. The degree of shock, the condition of the blood, and the patient's general condition determine the line of treatment. If the degree of shock is too great to allow immediate operation, the patient is put to bed with blankets and warm water bottles is given morphine and a warm saline solution by the Murphy drip method and is placed in the Fowler position as soon as he is strong enough.

One of the twenty patients refused operation and was taken from the hospital before any treatment had been given. Of the remainder 38 per cent recovered. Of those who died five were operated upon and two of the six died on the operating table. Most of those who died were injured in tramcar or automobile accidents or in falls from the second or third floor of a building. Of the patients injured by assault and battery 80 per cent recovered of those with tramcar and automobile injuries 50 per cent recovered of those injured in a fall 100 per cent died. Decreasing haemoglobin and blood pressure and increasing thirst are strong indications for operation.

McCracken comes to the following conclusions:

- 1 Rupture of the spleen in China is greatly increased by modern civilization
- 2 Immediate operation is not always advisable
- 3 Usually splenectomy is the operation of choice but if adhesions prevent removal of the spleen bleeding may be stopped by packing
- 4 Great care should be taken not to injure the tail of the pancreas
- 5 The left rectus incision is the incision of choice
- 6 In a country where large spleens are common rupture of the spleen should be thought of in all cases of injury to the abdomen followed by shock and haemorrhage

J. H. L. DICK, M.D.

### MISCELLANEOUS

Richards, L. C. Non Traumatic Hernia of the Diaphragm. An Embryological Viewpoint. *Ann. Otol. Rhin. & Laryng.* 1933, 45.

The author has collected all the cases of non-traumatic hernia of the diaphragm which have been reported since 1900 and has tabulated those reported previously by Thoma and Grossa.

Following a description of the anatomy comparative anatomy and embryology of the diaphragm diaphragmatic hernia are classified as follows:

- 1 True hernia: those with a hernial sac
  - a Congenital present at birth
  - b Acquired (1) through the natural openings usually oesophageal (2) elsewhere traumatic and non-traumatic
- 2 False hernia: those without a hernial sac
  - a Congenital
  - b Acquired all traumatic
- 3 Eventration of the diaphragm

The factors involved in the etiology of these hernias are as varied as the types themselves and differ according to the location of the hernia. In general they may be divided into two main classes: intra-fetal and extra-fetal. These are discussed at length.

The aortic opening has never been known to be the site of a hernia. This is because it is behind the diaphragm and because its ring is tendinous not muscular and attached closely to the vertebrae by the crura on each side. Neither has a hernia ever been found in the quadrilateral foramen through which the inferior vena cava passes.

The various hernia sites may be divided as follows: anterior, central, posterior, oesophageal, others. Any of the first three types may be right or left; the latter, the more common. The characteristics of hernias in the different locations are described.

Lacher states that the only viscera which have not been found in the chest cavity at least once are the urogenital organs and the rectum. The stomach is the organ involved most frequently.

A surprisingly large number of these hernias in adults have been discovered accidentally at autopsy and were entirely unsuspected during life. As long as there is no strangulation the condition is not incompatible with life. Most newborn infants with posterior defects and no sac die shortly after birth. Surgery is most successful in cases of hernia through a dilated oesophageal opening. True hernias are easier to close than false hernias.

Eventration is not a true hernia but a thinning out and weakening of the musculature of the diaphragm on one side, usually on the left, which causes the dome to rise high in the chest. This condition may be congenital or acquired, acute or chronic. The author reviews the various theories as to the cause.

The article is supplemented by numerous tables and diagrams illustrating the important points in the embryology of the parts involved.

CLAYTON F. ANDREWS, M.D.

# GYNECOLOGY

## UTERUS

Ferguson J H A Note on the Relative Merits of Operations on the Round Ligaments for Retroversion of the Uterus with a Suggestion for a Procedure for Increasing the Scope of Usefulness of the Alexander Adams Operation *J Obst & Gynaec B t E p 1923 xiv 382*

The author states that pessary treatment is little more than palliative in retroversion except in the puerperium when a pessary judiciously applied and worn until involution is complete not infrequently effects a cure.

Not every retroversion requires treatment. The cases demanding attention are those of fixed retroversion, those of retroversion associated with some degree of prolapse, those in which the uterus is bulky and those of uncomplicated retroversion associated with sterility in which no other cause for the sterility can be detected. Under normal conditions the round ligaments act as a delicate hairspring and by their gentle restraining action on the fundus maintain the balance of anteversion. This restraint makes it possible for the intra-abdominal pressure on the posterior uterine wall to keep the body of the uterus forward. The associated action of the uterine sacral and broad ligaments is also of great importance.

The stronger portions of the ligaments are those within the abdomen. In all cases in which the round ligaments are operated upon to correct a retroversion it is essential that the damage to the pelvic floor be repaired by a plastic operation. Gilliam's operation when successfully performed keeps the uterus well anteverted but the author has seen some cases in which it failed to stand the strain of pregnancy. In Ferguson's opinion this operation too greatly decreases the mobility of the uterus. Moreover it is often followed by severe pain lasting frequently for several days.

The Bald-Webster sling operation has the advantages of simplicity but renders the strong support of the round ligament useless.

The Alexander Adams operation or external method of shortening the round ligaments has fallen into disfavor because of its limited scope and the difficulties sometimes encountered in finding the ligaments because it has been done so frequently in suitable cases with disappointing results and because today the surgeon is able to deal with the peritoneal cavity with greater freedom and safety.

The author performs an Alexander Adams operation with a transverse incision of the skin and vertical incision of the fascia and peritoneum. In this method tension on the round ligaments from above

renders their recognition at the external rings comparatively easy with little opening up of the inguinal canals. The pelvic contents are explored through the incision, adhesions are released, ovaries or tubes and the appendix if diseased are dealt with as required and the retroverted uterus is liberated if it is bound down. Next the lower skin flap which has already been partially detached is reflected still more and pulled downward with a retractor. The external abdominal rings are then exposed and carefully defined as in the ordinary Alexander operation and the round ligaments are shortened in the usual way.

ROLAND S. CROON, M.D.

Commandeur and Eparvier A Uterine Fibroma Simulating Interrupted Pregnancy (*Fibrome utérin simulant une grossesse interrompue*) *Bull S. d. b. t. d. gyn. d. P. 1923 xii 559*

The patient a nullipara 48 years of age came under observation November 1, 1922. Her last normal menstruation occurred December 18, 1921. There was no history of menorrhagia or metrorrhagia.

After 10 months of amenorrhea the periods again became regular but the flow was scanty. From May until September the breasts contained milk. Abdominal enlargement had been progressive. A diagnosis of pregnancy had been made by several doctors and midwives but as labor failed to occur the patient consulted other obstetricians and finally arrived at the Lyon Maternity Hospital. There a diagnosis of interrupted pregnancy at the sixth month was made.

On January 14 membranous debris was expelled. The height of the fundus was 19 cm. The body of the uterus was smooth and of uniform consistency. The cervix was soft on the surface and cone shaped. Fetal heart sounds felt in parts and a placental bruit was not detected. Roentgenograms were negative for a fetal skeleton.

On February 4 colicky pains occurred with the discharge of blood stained mucus and with uterine contractions. Ergot and pituitrin were given to favor the appearance of labor. The ante-labor lip of the cervix seemed to thin slightly. After few days without result operation was advised. This was refused and the patient was not seen for five months.

When she again sought treatment at the end of that time the cervix had become effaced and a hard smooth rounded mass was felt in the canal. A diagnosis of fibroma of the uterus was made. Operation revealed a uniformly enlarged uterus containing a large number of fibroid, one of which extruded into the cervical canal.

ALB. F. D. GROUT, M.D.

De Vega Barrera R. A Suprapubic Abscess Following Roentgen Treatment for Uterine Fibroma (Absceso sup púbico consecutivo a la radioterapia por fibroma del útero) *Revista de Medicina* Madrid 1923 xvi 641

The author's patient was a woman 30 years of age. The technique followed in the roentgen treatment was that of Seitz and Wintz: four irradiations separated by intervals of two months. The roentgen therapy caused castration and complete cessation of the hemorrhage due to the fibroma, but also produced a large suprapubic abscess in the subcutaneous cellular tissue. Following drainage of the abscess the patient made a rapid recovery.

In the author's opinion roentgen treatment is contra-indicated in cases of (1) suppurated or gangrenous fibroma, (2) fibroma accompanied by inflammation or a tumor of the adnexa, (3) submucous pedunculated fibromyoma partially or totally extruding into the vagina, (4) very voluminous fibromyoma or those which cause compression of the bladder.

W. A. BRIDGES

Bowing H. H. The Application of Radium in Operable or Borderline Cases of Carcinoma of the Cervix Uteri Before Operation. *Radiology* 1923 i 199

Early carcinoma of the cervix is a rare clinical finding. A bimanual examination alone, however carefully performed, is not sufficient for the diagnosis. The knee-chest position, Sims' speculum, and a direct light are most helpful and should be used routinely. Proper biopsy material should be removed for study at the time of the radium applications.

If the lesion is adequately treated with radium and the interval between the first application and the total abdominal hysterectomy is sufficient, carcinoma cells will not be found on microscopic study of the specimen removed. As response to radium varies in different cases, individual treatment must be given. In cases of early carcinoma the most desirable procedure seems to be the introduction into the anterior portion of the cervical canal for fourteen hours of 50 mgm. of radium in the universal tube applicator, this to be repeated four times at intervals of three days, and followed by total abdominal hysterectomy four to six weeks from the time of the first application.

As a preoperative procedure irradiation with radium, by all means the surgeon's most effective method, it destroys the neoplasm and calls forth the natural defense mechanism of the body. In cases of primary carcinoma of the uterine cervix this treatment does not increase the difficulties of operation.

A total abdominal hysterectomy following the radium treatment is a justifiable procedure since it deals most effectively with the local pathologic condition and also with other pelvic lesions that may be found at the time of operation.

H. H. BRIDGES, M.D.

Faure J. I. Systematic Employment of Mickulicz Drainage in Hysterectomy for Cancer of the Uterine Cervix (L'usage systématique de la Micolich drainage large pour cancer du col utérin) *Bulletin de l'Association Française pour l'Etude du Cancer* 1923 xi 521

Long duration of the operation and infection contribute to the mortality of uterine cancer, and the frequency and severity of infection varies directly with the duration of the operation. Statistics differ widely; many surgeons reporting a mortality of 20-30 and 50 per cent. When the operation lasts three hours all patients succumb, and when it requires two hours many succumb, but when the time is reduced to one hour the mortality is generally about 10 per cent.

At various times the author's mortality has been 10 to 25 per cent. In sixteen of sixty-seven cases in which Mickulicz drainage was used there were only two deaths, a mortality of 3 per cent.

The Mickulicz drain was used even when good peritonization was possible and was removed gradually, the retaining piece of gauze coming out the tenth day.

Besides using thorough drainage, this method has the advantage that time can be saved by leaving hemostats in place and closing only the upper portion of the wound.

The gravity of the operation thus parallels that of hysterectomy for fibroid.

CONCLUSION: In discussing this paper, advocate Mickulicz drainage following hysterectomy performed in obstetrical conditions.

ALBERT F. DE CROAT, M.D.

## ADNEXAL AND PERI UTERINE CONDITIONS

Wahl M. T. Tuberculous Salpingitis. *Surgery* 1923 i 1557

Greenberg found tuberculosis of the tubes in nearly 1 per cent of gynecological cases and reported that of every thirteen at normal tubes removed one was tuberculous. Statistics regarding the frequency of tuberculous salpingitis show considerable variation. This is due in part to the fact that a microscopic examination is not always made and without a microscopic examination the diagnosis is often impossible. Williams showed that 5 per cent of his case of tuberculous salpingitis were not recognized on macroscopic examination. Of 216 pathologic tubes removed in the past four years, eleven were found to be definitely tuberculous and in only three of these was the condition definitely recognized at operation. Of these eleven cases only one was suspected clinically.

Tuberculosis is much more frequent among colored women than among white women. Tuberculous salpingitis occurs usually during the period of great sexual activity, but the author had one patient with the disease at the age of 15 years. The frequency of tuberculous salpingitis during active sexual life may have some direct relation to the altered

nate congestion and anemia of the tube occurring with each menstrual period

Congenital maldevelopment of the internal genitalia seems to predispose to tubal tuberculosis. Merletti found twenty eight cases of tuberculosis of the uterus in eighty cases of hypoplasia. In a large percentage of the cases there is a family history of tuberculosis. Greenfield reports that a positive family history is given in 22 per cent. In three of the author's eleven cases either a brother or a sister had died of tuberculosis. Six of the patients gave a history of sterility. The frequent association of sterility with tuberculous salpingitis has been noted by others. Whether the sterility is due to the tuberculosis or predisposes to tuberculosis is yet to be determined but in Wahl's opinion it is improbable that there is a definite connection between the two. In a large number of cases the onset of the disease is said to be associated with some phase of uterine menstruation.

Two points on which there has been a good deal of controversy are first whether the tuberculosis is primary in the tube and second whether the condition has any relationship to tuberculosis of the peritoneum. It is generally believed that primary tuberculosis of the tube is possible but very rare and that the tube becomes infected usually by way of the blood stream or by the extension of a process in the peritoneum. It is probable that the latter process is more frequent than the former but here again there is a great deal of difference of opinion. Hamatogenous infection would be dependent upon a primary focus somewhere else in the body from which tubercle bacilli escape into the general blood stream. The objection to this theory is that in many cases of tuberculous salpingitis no definite primary focus can be found but it is well to bear in mind the fact that failure to demonstrate a primary focus does not exclude the existence of such a focus since it may be too small to cause physical signs. In some cases a tuberculous salpingitis may cause an infection of the peritoneum.

Tuberculous salpingitis is usually bilateral but occurs more frequently on the right side than on the left. The tubes are more frequently the site of tuberculous infection than any other portion of the female genitalia. The uterus is affected next most frequently and then the ovaries.

In a certain group of cases of tuberculous salpingitis the picture is that of chronic thickening of the tube such as is caused by other forms of chronic salpingitis and cannot be distinguished from that of a chronic pyogenic infection. In another group of cases it resembles an ordinary chronic pyosalpinx. The tube is enlarged and often has a sausage shape. The distal end is occluded. The lumen of the tube is filled with a thick greenish yellow pus and the inner wall shows a caseous area and cellular granularomatous tissue. In fact, the inner wall may have an encephaloid appearance. In most cases typical tubercles are not present or are found as fibrinated ends. In a third group of

may be covered with numerous tubercles. This type is most frequent in cases of general tuberculous peritonitis with secondary extension over the tubes. The most common gross form noted in the author's cases is the pyosalpinx. Occasionally cystic formations may be present and often these may become very complex. Apparently they arise from fusion of the adhesions present over the surface of the tube and represent secondary tuberculous inflammatory reactions. Another type of reaction which was striking in a number of the author's cases was the neoplastic type in which there is an epithelial hyperplasia so marked as to lead to the formation of adenomatous structures protruding into the lumen of the tube. Some of these structures are so irregular and appear so invasive as to suggest a malignant change. The association between this condition and cancer has not been definitely established and is probably accidental rather than etiological.

Conditions most commonly associated with tuberculous salpingitis are acute appendicitis especially a perianapical reaction and denovomata.

The symptoms are often very obscure. Usually pain and tenderness are present especially in the lower part of the abdomen but these are not severe. In some cases the disease is only a sensation of weight in the pelvis. Some patients complain only of a mass in the abdomen, some of loss of weight with occasional elevations of the temperature and some of night sweats and chills. As a general rule severe constitutional symptoms do not occur unless there is an associated general peritonitis. Usually there is a tender palpable mass in the vaginal fornix. Amenorrhoea or other menstrual disturbance is sometimes reported. Sterility is common. Often there is an obscure abdominal pain for months with pain radiating into the lower back. As a rule there is a leucorrhoeal discharge. Physical examination of the chest and other portions of the body usually fails to reveal a primary focus.

After removal of the tubes the prognosis is good as long as the tuberculous process is limited to the pelvic adnexa but becomes grave when there is active tuberculous disease here when there is a pre-operative elevation of temperature and when there is extensive involvement of the peritoneum.

Perhaps the most striking characteristic of tuberculous salpingitis is the absence of typical and characteristic clinical symptoms and the frequent presence of only relatively light lesions on which there are numerous adhesions.

Ed. W. Co. & M. L.

#### Constantin and Fulcis. An Infected Ovarian Cyst Communicating with the Rectum.

*Hyst. et my. Cuv. (hyst. d.)* pp. 6  
et tub. d. i. rectum hyst. t. me. guérison)  
B. H. de la Soc. d. hist. d. g. t. d. P. 1931

484

The authors report the case of a woman 46 years old who was admitted to the hospital March 1912 with a diagnosis of post-typhoid abscess open

ing into the rectum. In August 1921 she had typhoid fever which lasted for three months and was complicated by intestinal hemorrhages. In January 1922 she had a relapse with fever for a month. In the spring of 1922 she noticed that the stools were blood colored, the blood being bright red. Later they became semipurulent and finally purulent. Her general condition was fair and her temperature normal.

When she was first seen by the authors her temperature was 37.5 degrees C. and a blood count showed 10,000 leucocytes and 82 per cent polymorphs. Vaginal examination revealed a large fluctuating mass in the left iliac fossa. The uterus was large, pushed to the right, movable and not involved by the tumor. Rectal examination was negative. The patient continued to evacuate yellow pus at times this was fetid. Rectoscopy was negative. X-ray examination with a bismuth enema did not give any information.

Operation revealed a large mucous cyst in the left iliac fossa. This was punctured and the liquid evacuated. It was then seen that the cyst extended into the true pelvis lifting the broad ligament. A large mass was found below on the right side. In the attempt to remove it it broke and pus escaped. Following its removal an opening was found in the anterior rectal wall. This was repaired. Hysterectomy was then performed. The patient made an uneventful recovery.

SALVATORE DI PALMA M.D.

### EXTERNAL GENITALIA

Petit Dutaillys P. The Treatment of Vulvar Cancer (Deuxième étude sur le traitement du cancer vulvaire vulvotomie élargie). *Gynécologie* 1923 x 53.

Three cases of vulvar cancer are reported, one in which the lesion was limited to the clitoris and nymphæ and two in which the labia majora were also affected.

The author believes that the vulva should be treated as a distinct organ and recommends a method called as the uterus. This operation may be done either before or after irradiation and the excision may be carried well outside the external limits of the organ. Cancers of the vulva do not tend to spread in depth beyond the urogenital floor. The author has never seen a recurrence in the vagina or beyond the urogenital floor. When a recurrence develops it appears in the skin or in the glands. In the majority of cases preliminary irradiation is given to sterilize the tumor as much as possible but this is more or less useless when the cancer is in its beginning stages and more or less harmful if exuberant masses have been formed.

With regard to the length of time operation should be delayed after irradiation, the author cites Delporte of Brussels who removes the vulva the tenth week after radium treatment at which time he believes the best sterilization has been obtained.

Petit Dutaillys always follows the removal of the

vulva with deep radiotherapy on the scar even when there has been pre-operative irradiation. In cases in which primary union is not expected, radiotherapeutic drainage may be established immediately after the operation or radium applied on the line of suture.

The efferent vulvar lymphatic system and its glands are very sharply differentiated. The lymphatics of the external genital organs and of the anal canal of common origin empty into the inguinal glands lying parallel and below the inguinal ligament. From there they go to the iliac glands.

The iliac gland may become involved early or late. The propagation may occur on one or both sides of the body even though the extent of the tumor may be limited apparently to one side. This fact demonstrates the connection between the lymphatic chains on the two sides.

It becomes evident that in the treatment of this condition all of the affected glands must be removed and irradiation must be applied to the entire lymphatic current. The author does not favor pre-operative irradiation of the glands as this seems to cause adhesions and to render ligation of the vessels more difficult. He believes that the most simple method of sterilizing the infected tumors is cauterization with the cautery. In brief, the treatment he advocates for vulvar cancer is complete ablation of the organ followed by superficial and deep irradiation.

The article is supplemented by illustrations showing the methods of excising the tumor.

SALVATORE DI PALMA M.D.

### MISCELLANEOUS

Spalding A. B. The Incidence of Venereal Disease in Patients Suffering with Sterility. *Clinical Sterility* 1923 xxi 457.

Pettit A. V. The Significance of Cervical Pathology in Sterility. *California State Journal* 1923 459.

Anderson C. W. The Adnexal Organs in Relation to Sterility. *California Sterility* 1923 xxi 460.

Lynch F. W. Tumors and Displacements in Relation to Sterility. *California Sterility* 1923 x 461.

Pottenger F. M. What Relation Exists Between the Endocrine Glands and Sterility? *Clinical Sterility* 1923 xxi 465.

Loomis F. M. The Diagnosis and Treatment of Sterility. *Clinical Sterility* 1923 xxi 466.

SPALDING reviewed the histories of 200 patients complaining of sterility to determine the incidence of venereal disease. Of a total of sixty-seven patients tested, eleven had a positive Wassermann reaction, an incidence of 16 per cent. This is a high percentage when compared with a series of 882 gynecological cases in which only 6.6 per cent of the Wassermann tests were positive and a series of 1,153 obstetrical cases in which the Wassermann test was positive in only 3.7 per cent. Therefore in normally pregnant women the incidence of syphilis is about

half that found among non pregnant women and in sterile women the percentage is higher. Of forty seven cases of primary sterility in which a Wassermann test was made the reaction was positive in 1 per cent. Of twenty women with secondary sterility three had a positive test an incidence of 20 per cent. It seems justifiable therefore to conclude that syphilis is a common factor in sterility and is more frequently associated with primary than with secondary sterility.

With reference to the incidence of gonorrhea in women with sterility it is assumed that involvement of Skene's and Bartholin's glands is indicative of gonorrheal infection. Infection of Skene's glands was noted in 14 per cent and infection of Bartholin's glands in a slightly smaller percentage. In more than 50 per cent of the cases cervicitis was found and in 10 per cent there was evidence of tuberculous infection.

Uncomplicated retroversion is not in itself a frequent cause of sterility. Sixteen of thirty three husbands (50 per cent) showed a permitt.

Leitner investigated the condition of the cervix in 230 sterile women. The average age was 23 years and the average period of infertility 5 years. Chronic infection of the cervix is present in 56 per cent of the cases and in 31 per cent of these there was palpable evidence of terminal pelvic inflammation. In 3 per cent of thirty cases of chronic endocervicitis in effusion tests showed the tubes to be closed. Stenosis of the cervix was a possible cause of sterility in eleven cases but in Leitner's opinion stenosis is rarely responsible alone. In all of these cases there was sufficient inflammation to produce thick mucus which plugged the stenotic canal. In seven cases of infantile cervix there was infantilism of other organs of generation. In one case the cause of sterility was an endocervical polyp. In four cases a test of tubal patency was made. In fourteen without signs of cervical infection the tubes were found patent. Of thirty cases with cervical infection the tubes were found patent in only eight. The sterility in these cases was due probably to the cervical condition.

Forty two of 155 women with known cervical inflammation were sterile. In six of these cases was evidence of inflammation of the endometrium noted in specimens obtained by curettage. This shows the marked immunity of the endometrium even in the presence of cervical and tubal cases. In these 230 cases of terminal pelvic inflammation seemed to be the most important single factor producing the sterility being present in 56 per cent. The indication is for early and thorough treatment of the cervix to prevent local barriers to the ingress of spermatozoa and to prevent extension of the infection which may cause permanent destruction of the generative organs.

Anderson believes that the tubes and ovaries play a very important part in sterility. Until recently the tubes were held mainly responsible. Salpingitis is by far the most important factor impair-

ing the functional value of the tube as an oviduct. Gonorrheal salpingitis more than any other type shows a tendency to become cured spontaneously and many women with bilateral gonorrheal salpingitis have recovered and have subsequently borne children.

However tubes that are severely inflamed or frequently reinfected are apt to be permanently damaged. In such cases the fibrinated extremity frequently becomes occluded. Sometimes the tube remains open at the abdominal extremity but is closed at some other point of its course. Sterility is the rule in tuberculous salpingitis. Infantile and appendicitis in childhood are occasional factors in the production of sterility.

Disorders causing sterility by interfering with ovarian function are constitutional toxic endocrine and mechanical. Among constitutional causes are malnutrition, anemia, achnesia and condition arising from faulty diet and hygiene. The most important to consider are syphilis, mumps, chronic alcoholism, morphinism and arsenic poisoning and lead poisoning. Endocrine sterility includes cases of infantilism with undeveloped ovaries and those in which sexual activity wanes early in life. Intramural conditions of the ovaries result in adhesions which interfere mechanically with the normal maturation of the graafian follicle and the discharge of the ovum.

The important point in the diagnosis of a case of sterility in which the tubes are suspected is the patency of the tubes. This is best determined by the Rubin's inflation test. With the exception of tumors and cysts of the ovary, the diagnosis of ovarian condition can be made best by careful consideration of the history.

The most promising treatment of obstructed tubes is gas inflation. In a large percentage of cases plastic surgical procedures are not successful. Conditions of the ovaries leading to sterility do not offer an attractive field for surgery.

Lynch discusses fibroid retroversion and retroflexion as causes of sterility. About 30 per cent of married women with fibroids are sterile. Sterility is common in women with large fibroids but it is very probable that both sterility and fibroids are due to a common factor. A large percentage of retrodisplacement is causing no symptoms and is of congenital origin. Sterility is much more common in cases of congenital retroversion than in cases in which the retroversion has been acquired. Of 450 women with retroflexion 28 women became pregnant but in eighty this occurred while the uterus was known to be anteverted.

Portencer discusses the relation between the endocrine glands and sterility. Genital function is stimulated by ovarian thyroid pituitary and suprarenal sections. It seems to be diminished by the thymus and at times by the thyroid. In a certain group of cases of sterility the ovary is a constant factor. Ovulation may not take place but on the other hand it may occur in the absence of menstruation.

ation Hypoplasia and hypo activity of the ovaries of congenital origin are due usually to hypo activity of the thyroid or pituitary. At times the adrenals are also at fault.

A very marked influence is exerted upon the sex organs and sex function by the thyroid secretion. A decrease in this secretion in early years stunts the growth and development of the sex organs and in later life depresses the function of ovulation and menstruation in a considerable number of cases leading to sterility. The influence of the pituitary gland on the sex organs is often greater than that of the thyroid. Hypopituitarism occurring before puberty may cause any one of three conditions: infantilism both general and sexual without distrophy; stunted growth with genital hypoplasia and adiposity; or gigantism with adiposity and genital hypoplasia. All of these conditions lead to sterility. It is not uncommon for sterility and an early menopause to follow toxæmia. The cause may be direct injury to the ovaries or to the thyroid or pituitary.

Loomis presents data on the diagnosis and treatment of sterility based upon an analysis of 150 consecutive cases. He finds that the sterile woman does not differ greatly from the average primiparous obstetrical patient in menstrual abnormalities or leucorrhæal discharge but is usually about five years older than the average primipara.

When cervical disease is present and can be corrected the prognosis is favorable. The infantile uterus is less apt to become pregnant. In cases of adnexal disease the prognosis is poor unless operation is performed. Tubal inflation and examination of the woman after coitus are indispensable for diagnosis and treatment. In 35 per cent of the cases examination after coitus shows poor few or no spermatozoa. In about 5 per cent the condition is hopeless.

HARRY W. FICK, M.D.

#### Graves, W. P. The Relation of Backache to Gynecology. *B. I. M. & S. J.* 93: 12, 57.

Backache above the sacral or lumbar region has no definite relationship to pelvic disease. Relief of such backache following pelvic operations is effected indirectly or incidentally.

On the basis of study of 500 cases of uterine retroversion the author maintains that low backache is very often associated with malposition of the uterus and frequently is relieved by reconstructive operations. In 76 per cent of the cases reviewed complaint was made of low backache and in 85 per cent of 263 cases followed up the condition was cured or greatly relieved by treatment.

That backache is due specifically to certain uterine malpositions is proved further by the frequency of sacral backache in young nulliparous women with retroflexion of the uterus.

In cases of retroflexion of the uterus essential dysmenorrhœa is generally felt in the lower part of the back instead of in front as in cases of uterine ante-

Absence of backache in the presence of retroflexion of the uterus is the exception rather than the rule.

In cases of marked prolapse the greater the descent of the uterus the less frequent are the symptoms of fatigue and backache. Women with complete procidentia suffer least.

The author emphasizes the importance of excluding orthopedic errors before assuming that a backache is due to pelvic disturbance.

C. FISKE JONES, M.D.

#### Bergeret and Moulonguet. Primary Chorionepithelioma of the Broad Ligament (Chorion épithéliome primitif du ligament large). *Gy. éc. et obs.* 1923: 511, 528.

Primary chorionepithelioma of the broad ligament is a rare and little understood tumor. According to the literature it has never been recognized prior to microscopic examination being mistaken for pelvic hematocoele or an angioma.

The authors review particularly from the standpoint of pathogenesis a case of their own and others reported in the literature.

The authors' case is unusual in that the tumor pulsated, produced a thrill and a systolic souffle and by compression of the ureter a hydronephrosis.

At operation marked telangiectasis was found throughout the pelvis especially in the immediate vicinity of the tumor in the right broad ligament. After supravaginal hysterectomy the tumor was in part removed. It consisted of a single cavity filled with old clots. The lining resembled the intima of blood vessels. The walls of the cavity were thin and composed of areolar tissue honeycombed by large blood vessels. The broad ligament showed a plexus of the adult type of veins and arteries and in the intervening connective tissue masses of leucocytes most of which were polymorphonuclears. Only a few areas of small extent showed the syncytial cells characteristic of the tumor. The chance finding of which made the diagnosis possible. Serial sections showed the uterus and adnexa to be normal. Most remarkable was the enormous development of adult blood vessels stimulated by minute masses of syncytial cells. In this connection the authors call attention to the theory of hormonozones of Cley.

Common to the cases reported in the literature are abortion with retention of placental fragments and a false diagnosis. Frequently there is fever. Examination reveals a pelvic effusion or a vascular tumor simulating aneurism or angioma. Some of the symptoms and signs are those of early pregnancy viz vomiting, hot flashes, pruritis and enlargement of the breasts.

The problem in pathology consists in accounting for the presence of an extra uterine chorionepithelioma in the presence of a normal uterus and adnexa. In the authors' opinion the tumor developed primarily outside the uterus from migrated elements of a normal chorion or a placental mole.

ALBERT F. DE GROAT, M.D.



Klaften E. Biological Changes After Weak Roentgen Irradiation in Certain Gynecological Conditions (Ueber die biologische Veranderungen nach Röntgenstrahlbestrahlung in gynaekologisch bedingten Zuständen). *Zentralblatt für Gynäkologie* 1931

The main changes following weak roentgen irradiation of the hypogastric region in females are in the leucopoietic system. The appearance of large platelets and thrombopenic purpura after weak irradiation possibly points to an indirect effect on the spleen.

Weak roentgen irradiations in inflammatory diseases of the abdomen produce the same effects as those usually seen after parenteral specific and non specific protein therapy. (TUMER, C.)

Mandelstamm A. I. The Operative Treatment of Incontinence of Urine in the Female (Zur operativen Behandlung der Harninkontinenz bei Frauen). *Archiv für Klinische Chirurgie* 1923

The author discusses the anatomy of the internal sphincter of the urethra and the origin of incontinence in women especially after trauma. The various treatments but especially satisfactory results are obtained with Stoeckel's plastic operation

on the internal sphincter. In complicated cases (cicatrices fistulae etc.) the pyramidalis plastic of Stoeckel or the levator plastic of Franz is used. In the cases of old women very good results are obtained with the Wertheim Schauta technique consisting of interposition of the uterus with a perineal plastic.

Fifteen cases of urinary incontinence have been treated surgically by the author.

This paper was discussed by Figurnow and Mandelstamm of Petrograd.

FIGURNOW has found that the sphincteroplasty of Stoeckel gives good results in cases in which the fundus of the bladder assumes a very high position. When the position is low the sphincteroplasty must be supplemented by elevation of the fundus of the bladder and its fixation by suture to the posterior surface of the symphysis.

MANDELSTAMM said that the low position of the fundus of the bladder by no means plays the important part in the etiology of urinary incontinence that is ascribed to it. In one half of 218 plastic operations performed during the last four years the fundus of the bladder was found displaced downward but caused no disturbances in urination. Such disturbances were noted only seven times.

GROSS (2)

# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Smith F C and Shipley V T The Abderhalden Reaction *Am J Obst & Gy* c 1924 vii 4

As a practical serological test for the diagnosis of pregnancy would be of great value the authors attempted to modify the technique of the Abderhalden test so as to overcome its manifest faults and to make it more practical. One hundred and thirty one sera were tested forty three from pregnant women fifteen from non pregnant women and seventy three from males. These tests showed that while the natural ferments present in the serum are somewhat increased during pregnancy there is no evidence of a specific ferment. The tests on the sera of pregnant women were uniformly positive but the large number of positive results in tests on the sera of men and non pregnant women proved that the test is of no value for the diagnosis of pregnancy.

EDV RD L CORVELL M D

Rowley W N Dental Care During the Prenatal Period *Am J Obst & Gy* 1923 i 737

The fact that the teeth may be the focus of infection causing certain kidney lesions is recognized. During pregnancy the function of the kidneys must be safeguarded. Teeth showing evidence of periapical infection may be safely removed during pregnancy. Co-operation of the dental surgeon with the physician in diagnosis and treatment is of great importance and proper preparation of the patient is essential.

The areas of infection should be removed by stages. In most cases surgical removal is the method of choice. In practically every case local anaesthesia is satisfactory. The period of pregnancy at which removal may be best accomplished depends upon the patient's condition. Early removal of the dental foci should be a part of every prenatal regime. Prophylactic periodontia is equally important. Carious teeth demand attention. Temporary dental fillings are preferable to permanent work.

E W RD L CORVELL M D

Wither R M The Histologic Changes in the Ovary During Pregnancy (Ueber die histologische Veränderung des Ovariums während der Schwangerschaft) *Zi k f G b i k Gy* k 93 l xx 4

The first signs of retrogression of the corpus luteum of pregnancy were found after the second month after the fifth month they were distinct and in the puerperium very pronounced. In the first two months of pregnancy fatty degeneration of the lutein cells was discovered in the later months this decreased. Drops of cholesterol were frequently found in the retrogressing corpora lutea of the puerperium.

pigment belonging to the lipochromes could be demonstrated during pregnancy. In the finely granular theca cells that had undergone fatty degeneration a substance was found that is probably identical with Escher's carotin.

For the bodies in the lutein cells which Miller describes as colloid drops Walthard proposes the name globular myalin a term which designates the nature of these bodies more accurately. As a substitute for the term obliterating form of atresia introduced by Seitz the terms follicular atresia and theca lutein cysts are proposed.

The author was unable to find any morphological proof that during pregnancy any other cells than the lutein possess the possibility of internal secretion. Therefore he rejects for the human ovary the term interstitial ovarian gland as applied to the theca cells of the atretic follicle as a whole. WERNER (G)

Danby A B Three Cases of Pregnancy with Extravasation of Blood Associated with Albuminuria *Proc Roy Soc Med Lond* 1924 xvi Se t Obst & Gy xc 2

The author suggests that extensive extravasations of blood into the pelvic tissues may be manifestations of toxæmia of pregnancy. He believes that the multiple various sized hæmorrhages which are almost pathognomonic of toxæmia of pregnancy are due not only to increased blood pressure but also to changes within the blood vessel walls dependent upon the toxic substance. The three cases he reports are the following.

CASE 1 The patient was a primipara aged 30 years. There was no sign of varicose veins arterio-sclerosis or renal disease. Slight œdema of the ankles appeared one month before confinement and a trace of albumin as first found in the urine two weeks before labor.

Ten hours after labor began a swelling the size of a walnut appeared in the right labium. The position of the fetus was occiput left anterior. The os was completely dilated. The swelling became progressively larger with each pain until it assumed the size of a small fetal head completely blocked the birth canal and extended to the perineum.

Spontaneous rupture occurred and a 1/2 lb baby was delivered by forceps. The duration of labor was four and one half hours. No pituitrin was given. The urine still showed a slight trace of albumin.

CASE 2 The patient was a primipara aged 32 years. Fifteen hours after delivery a paravaginal hæmatoma appeared. It extended from the base of the broad ligament to the perineum and into the buttock. The labor was premature at eight months. At six months the patient had had an attack of nausea and vomiting with a burning sensation in the



serum or plasma finding are quite normal while in other cases there is a moderate increase. The increase is noted most often in the uric acid values. A moderate rise in the concentration of this nitrogenous end product being common. Examination of the findings in cases of undoubted clinical nephritis fails to show any particular variation which may be regarded as pathognomonic of the condition. It seems therefore that chemical examination of the blood for these constituents is useless as an index of the severity of the pathologic changes in eclampsia and its toxæmia. Rot. v. 5. Cx. M.D.

#### Vorwand Mantalin Lumbar Puncture in Eclampsia (Ponction lombaire et élimination) B.H. 5 d. b. t. d. gy. de Pa. 1923 v. 5

Three cases of eclampsia were treated by lumbar puncture after the usual treatment with sedatives and measures to promote elimination. In each a clear fluid under normal pressure was obtained. The punctures were followed promptly by marked improvement notably of the nervous symptom, delirium, visual disturbance and headache.

ALBERT F. DE G. O. T. M.D.

#### Gillatt W. Placenta Prævia in Four Successive Pregnancies. P. of Roy. Soc. Med. L. d. 1933 Sect. Obstet. & Gynaec. 2

Gillatt's case is that of a woman 32 years of age whose first pregnancy in 1914 was complicated by lateral placenta prævia which caused the birth of a stillborn child at seven and a half months. Labor was preceded by considerable hemorrhage for a week. The second confinement which occurred in April 1919 was preceded by severe hemorrhage due to central placenta prævia the fetus presented by the breech. The placenta was perforated and a leg bled out. A dead fetus then being delivered spontaneously. The mother made an uneventful recovery. In her third pregnancy which occurred about a year later bleeding began early but this was not severe and the fetus was carried to term. The presentation which was transverse in the early months of pregnancy terminated in spontaneous delivery as a first vertex. Manual removal of the placenta was necessary on account of postpartum hemorrhage. It showed evidence of premature separation and was evidently attached to the lower uterine segment over the internal os.

The patient again became pregnant in 1922. Bleeding began at about the sixth month. Labor occurred at about the thirty-second week of pregnancy. When the cervix was half dilated the placenta could be felt coming to the third of the dilated canal. The membranes were ruptured and a leg was brought down. Delivery of a living child occurred spontaneously in ten minutes. The placenta which was removed manually showed no unusual features.

Only two other cases of repeated placenta prævia were found in the literature. In the first it occurred five successive times and in the second it occurred twice.

HARRY W. FINCH, M.D.

#### Nubiola. Disintegration of the Placenta in Utero placental Apoplexy (La placentalyse dan l'utero) plev. utér. placentaire) G. J. et L. b. t. 93 495

The author has made a study of five consecutive cases of premature separation of the placenta from the clinic of Barcelona with special reference to changes in the placenta and evidence of maternal toxæmia. Common to all of the cases were albuminuria (in one case there were eclamptic convulsions), internal and external hemorrhage with a normally inserted placenta, death of the fetus, a large excavation in the placenta at the site of the hematoma resulting from hyaline degeneration of the villi, marked dilatation of the placental vessel with points of rupture and parenchymatous hemorrhage often extending into the maternal circulation and numerous white and red infarcts.

The conclusion is drawn that the minor changes in the placenta, white and red infarcts and the more serious uteroplacental apoplexy represent different degrees of the same pathologic process and find their pathogenesis in the autointoxications of pregnancy.

The article concludes with a report of the results of immunological studies in which fetal and maternal serum and erythrocytes and placental extract were employed.

ALBERT F. DE G. O. T. M.D.

#### Drosin L. Views and Observations on Abortions V. J. & M. J. & Med. R. 923 c. 1546

The author classifies the causes of abortion as maternal and fetal. The former includes obstipation, constipation and full bladder with exaggerated anteversion or anteversion of the uterus resulting in congestion.

Other maternal causes are ascensus, supracensus, rigid ligaments, a short vagina, fibrosis, hypertrophy of the uterus or adhesions which prevent sinking of the uterus into the pelvis and by thus cutting off the blood supply cause uterine anemia.

Of the fetal causes the author stresses especially twisting or apoplexy of the cord resulting in the death of the fetus.

Under symptoms the author describes certain signs found during bimanual examination which are as he claims typical of the type of abortion.

When abortion is threatening the administration of ergot is contra-indicated but when it is inevitable ergot is of value to control bleeding and assist in emptying the uterus.

In general the author advises curettage with a sharp curette in all cases of abortion. The operation should be preceded by a hypodermic injection of pituitrin and followed by swabbing the interior of the uterus with full strength iodine.

During the curettage for therapeutic abortion the anterior or wall just above the internal os should be carefully and thoroughly curetted and if the uterus is in retrodisplacement the same care and thoroughness should be observed in regard to the posterior wall.

Ballooning out of the uterus is best controlled by the use of pituitrin and ergot followed by careful curettage.

The author claims that except in the cases of primiparae the necessity for anesthesia for emptying the uterus can be avoided by tactful management and cheerful reassurance. He advises against the uterine drain and intra uterine douche. He never cures when the bladder is distended.

KOLAND S. CR. M.D.

Mason N. R. and Storrs R. W. An Analysis of 490 Cases of Extra Uterine Pregnancy. *B. J. M. & S. J.* 1923 cl x x 914

The authors have analyzed 400 cases of extra uterine pregnancy operated upon at the gynecological clinic of the Boston City Hospital in a period of twenty years. The most striking point in the histories was menstrual irregularity. Irregular bleeding occurred in 90.5 per cent of the cases and varied in duration from one day to several months. The character of the pain varied from a dull ache to a sharp stabbing pain in one side of the lower abdomen. Vomiting occurred in 40 per cent and when accompanied by fainting indicated marked peritoneal irritation. The age incidence followed very closely the usual curve of childbearing. The youngest patient was 18 years of age and the oldest 47. Extra uterine pregnancy developed before the third parturition in 73.8 per cent of the cases. A previous operation for ectopic pregnancy had been performed in 3.5 per cent and in 11 per cent a previous laparotomy had been done.

In cases with considerable loss of blood the temperature was subnormal and corresponded roughly to the degree of shock and hemorrhage. The presence of concomitant signs of pregnancy could not be relied upon. Softening of the cervix was recorded in 145 cases and breast changes or blueness of the vagina were noted in a very few. Abdominal tenderness was present in 80.5 per cent of the cases and in about half of these was localized in one of the lower quadrants. The findings of vaginal examination and the presence of clots of blood with clots were of considerable diagnostic value. A vaginal mass was felt in 84.7 per cent of the cases.

From the standpoint of treatment cases of ectopic pregnancy may be classified in three groups: (1) those with marked signs of shock and hemorrhage which are poor surgical risks; (2) those which have definite signs of hemorrhage but are good operative risks; and (3) those without signs of bleeding in which the diagnosis is doubtful. In the first class the treatment is that of shock and of the measure employed blood transfusion is the most valuable. If there is no improvement after three to four hours bleeding is probably still active and operation is indicated. For the second class of cases immediate laparotomy under ether anesthesia is recommended. In cases with a bulging mass, high temperature and marked leucocytosis the employment of spinal puncture with a large caliber needle has been very helpful in

the diagnosis. The third class of cases may be treated symptomatically until a diagnosis is made and then subjected to laparotomy.

Excision of the involved tube is recommended. The other tube if normal should be left. Blood clots should be removed if the patient's condition warrants it. Oozing is controlled best by pressure or packing. In the absence of infection the abdomen should be closed without drainage. The abdominal operation is preferable to the vaginal as it is followed by quicker recovery.

Free blood was found in the abdomen in 260 cases. Tubal abortion had occurred in seventy-five cases and tubal rupture in 167. One case of ovarian pregnancy developed to practically full term. In 193 cases other abdominal disease was found. This may be a factor in the production of ectopic pregnancy. Of 308 cases examined microscopically 250 showed chorionic villi.

The mortality was 7.7 per cent. The causes of death given in decreasing order of their frequency were peritonitis, shock and hemorrhage, ileus, bronchopneumonia, pericarditis and acute dilatation of the heart. H. W. W. L. M.D.

Della Porta P. A Case of Extra Uterine Pregnancy at Term with a Living Child. *The New England Medical Journal* 1923 cl x x 914

Four days before missing a menstrual period the patient, a woman 32 years of age, noticed for a few minutes loss of bright red blood. A month later she was taken severely ill with violent vomiting profuse sweats, a pain in the right part of the abdomen. With rest and bed these symptoms ceased. Ten days later she had a similar attack but the pain was localized in the right iliac fossa. She applied for examination to a maternity hospital April 1, 1922.

Examination revealed anemia (red blood cells 2,500,000), a large tumor about the size of a four-month pregnancy anterior to the cervix. A diagnosis of extra uterine pregnancy was made but as the patient then felt a great deal better she refused operation. She was therefore discharged with the remark that it might remain under medical supervision.

On October 2, 1922, when she was readmitted to the hospital she stated that for four months she had felt active fetal movements and that she had enjoyed good health since her previous discharge but felt very tired and had experienced some mild abdominal pain which was particularly severe when the fetal movements occurred.

The abdomen was enlarged as in pregnancy at term but the enlargement was more marked on the right side than on the left. Palpation was unsatisfactory on account of tenderness but a fetal head was felt above. On the right side the fetal heart was felt. The vaginal portion of the cervix as pushed backward and the external os was closed. The body of the uterus could not be distinguished from the

mass which was palpated externally. The vaginal vault was distended particularly to the right where a fetal part was felt. On exploration the uterus was found empty. A diagnosis of extra uterine pregnancy at term was made.

On October 14 a laparotomy was done. Beneath peritoneal adhesions was a resistant mass to which the omentum and intestinal coil were adherent. When the sac was incised amniotic fluid escaped. The child was found alive and in a podalic position. The placenta was inserted on the ascending colon. As an attempt at removing the placenta resulted in severe hemorrhage packing was resorted to after the removal of the rest of the fetal sac. The child was a male it was 49 cm long and weighed 2930 gm. The mother recovered. A report received June 30 1923 stated that the child as in good health.

The author concludes his article with the following statements:

1. Even when interruption is threatened repeatedly extra uterine pregnancy may continue to term as a secondary abdominal pregnancy.

2. To prognosticate the continuation of an ectopic pregnancy with repeated threatened interruption is very often difficult.

3. It is advisable to wait only until the end of the sixth month of pregnancy as after this time the placenta has been completely formed and definitely fixed the possibility of a viable child is increased and the immediate danger is diminished.

When the fetus is living it is best not to attempt to deliver the placenta if it is implanted on an organ of importance unless such delivery is easy.

S. LATORE DI PALMA M.D.

## LABOR AND ITS COMPLICATIONS

Steinberg B. The Use of Pituitary Extract in Labor. *Am J Obst & Gyn* 1924 118.

The effect of pituitrin on the uterus simulates normal uterine contractions but pituitrin pains are stronger they do not last as long as normal pains and they occur at shorter intervals. At no time is tetany produced. When pituitrin is given in the first stage of labor before complete or almost complete dilatation of the cervix cervical lacerations may result. In cases of pelvic malformation in which the fetus is not expected to adapt itself to the passages pituitrin should not be used. In the cases of women who have had numerous pregnancies the uterus may rupture even under normal conditions and hence any additional force in the form of pituitrin is dangerous. Contractions induced with pituitrin to initiate labor simulate normal contractions more than those which are induced during labor. Women whose labors are hastened with pituitrin are less apt to develop cystocele and rectocele because the length of time the baby exerts pressure on the pelvic structures is decreased.

Pituitrin is indicated in the following conditions: (1) prolonged labor (2) exhaustion (3) evening

of the uterine contractions (4) uterine stasis with the head in the perineum and (5) fetal complications. These indications must be associated with the following conditions: (1) a normal pelvis (2) engagement of the presenting part (3) complete or nearly complete dilatation of the os or a dilatable os and (4) rupture of the membranes.

In fact any indication for forceps indicates the use of pituitrin. Forceps necessitate the use of anesthesia produce lacerations endanger the fetus and expose the patient to infection through manipulation.

If the effect of pituitrin simulates normal contractions the author assumes that in small doses as tried in one of the six cases reviewed it can initiate labor.

EDWARD I. CORNELL M.D.

Berkeley C. The Use and Abuse of Obstetrical Forceps. *J Obst & Gynecol & Emp* 1923 22:3.

The author criticizes the teaching of obstetrics in the medical schools of London. He attributes the poor obstetrics done in London to the lack of a sufficient number of obstetrical beds for teaching purposes in the London hospitals to the fact that students are not compelled to attend the antenatal clinics and to the fact that the seriousness of an obstetrical operation is not sufficiently appreciated by the patient's family the attending accoucheur and the majority of practitioners.

The most frequent indication for the forceps operation is delayed labor. The author discusses delayed labor at length and concludes his article with the following statement: It has been said with some semblance of truth that gynecologists would starve if it were not for bad midwifery. The forceps is an extremely valuable instrument when used with intelligence and in suitable cases so is poison gas.

A statistical report of the forceps case in the London Maternity Hospital from 1908 to June 1923 is appended.

POZAND S. CROOK M.D.

Hill T. J. C. The Case Against Axis Traction Forceps. *J Am Med Ass* 1924 137:1119-25.

The author discusses the various types of forceps and concludes that the best is the Dewees forceps although in these as in the others the pull applied at the handles is multiplied at the blades.

He then considers the indications generally accepted for the use of axis traction forceps the methods of application the injuries to the mother and child and the after effects in the mother.

The article is concluded by a discussion of alternative method of delivery. In many cases when proper pelvic measurements are taken and proper prenatal work and antepartum fetometry are carried out much or all difficulty can be avoided by timely induction of premature labor. If the measurements are too small to justify this procedure an elective cesarean section one week before term is the obvious solution. When the patient is seen for the first time in labor a different plan must be followed. First a test labor of sufficient length is necessary to deter-

mine what she will do for herself. If sufficient time is allowed the head will often mold and enter the pelvis without aid.

If the head does not enter or descend the pelvic canal to the level of the ischiatric spines spontaneously it should not be dragged down. Ordinarily forceps of any kind are justifiable below the level of the ischiatric spines but not above it. With our present facilities for surgical delivery, high forceps have no place in obstetrics. If the axis traction forceps are applied and the head is brought down easily they are unnecessary. The Simpson forceps properly applied with the so called axis traction grip—one hand pushing the handles upward and pulling moderately outward and the other hand making downward pressure at the lock of the handles—will exert all the force that is justifiable and will bring the head down as well as the axis traction instrument and with much greater safety to the mother and child. In this respect the modern Kugel and forceps with their lack of pelvic curve and with a shifting lock may prove superior to the Simpson forceps.

If this degree of force is not sufficient to move the head greater force should not be applied. In these cases if the child is dead craniotomy is the proper method of procedure but if the case has been intelligently managed up to this point the child will not be dead and a low cervical cesarean section will secure its delivery with maximal safety to both the mother and the child. This is a much safer procedure than an axis traction delivery requiring the usual amount of force. There is much less risk of sepsis and no risk of hemorrhage; the child is never needlessly mutilated and subsequent normal delivery is not jeopardized provided the patient measurements permit it. *ROLA D S CRO MD*

**Crothers B.** Changes of Pressure Inside the Fetal Craniovertebral Cavity. *Surg Gynec & Obst* 923 x 0

In this article the results of the application of force to the fetus during delivery are considered from a physiological and neurological standpoint. The most important lesions which may be caused directly by force are rupture of the falx cerebri or tentorium cerebelli and rupture of the cervical spinal column. These are not necessarily fatal but they expose the medulla and upper cord to injury.

Under ordinary circumstances the medulla is protected from injurious pressure by the tentorium and by equilibrium of fluid pressure at the foramen magnum which prevents downward displacement of the contents of the posterior fossa. This balance of pressure can be upset and herniation of the cerebellum and medulla may be produced by rupture of the dura septa or by combinations of forces which maintain or increase the intracranial pressure while shifting the spinal pressure.

Breech extraction as commonly performed brings dangerous and unphysiological forces into play. Pathological evidence shows that rupture of the tentorium occurs in 88 per cent of stillborn infants

delivered in so called normal breech labors. A considerable number of injuries of the vertebral column or the spinal cord may also be logically attributed to traction during breech delivery.

In addition to the gross injuries which account for about half the deaths of viable newborn babies various alterations of pressure during delivery and manipulations made during resuscitation may cause fatal or disabling lesions in the central nervous system.

Asphyxia as commonly described in obstetrical literature is vaguely defined and pathological and experimental evidence of it is lacking. While the absence of proof is not in itself evidence against the obstetrical conception it invites challenge. The pathological findings particularly those in babies dying after breech delivery raise the question whether efforts to prevent fetal asphyxia may not add to the already great risk of injury to the craniovertebral cavity. *HAIRY W FISK MD*

**Harper P T.** The Occiput Posterior. *Am J Obst & Gynec* 1941 53

Treatment of the occiput posterior is summarized as follows:

Until the shoulders have become engaged treatment that displaces the child's body toward the front and holds it there favors the assumption of an anterior position by the occiput providing the presenting part is so located that the occiput can rotate. The latter may lie above or below but not in the inlet. After engagement of the shoulders neither forward displacement of the body nor ven manual rotation of the occiput gives hope of permanent assumption of an occiput anterior position because when the rotating force is removed the occiput re-assumes its anterior relation to the shoulders.

When labor is obstructed at the inlet or in the upper mid pelvis and the occiput is posterior the conditions to be treated are those that have caused obstruction such as retraction and pelvic deformity and not posterior position of the occiput. In other words when labor is obstructed high up there is no treatment for the occiput posterior as such. When the presenting part is in the lower mid pelvis or at the pelvic outlet and when anterior rotation and subsequent advance do not occur then treatment depends upon the cause or causes of delay. The most important item in the management is artificial aid in accomplishing what the patient is unable to do in doing it in the way that most closely imitates the natural process and in doing it before untoward results of delay demand it. The requirements are met by the judicious use of forceps.

The attitude toward the occiput posterior should be one of objective examination. Active intervention applies treatment that is indicated but is not meddling. It is the opposite of a policy of mere letting alone that results in treatment only when it is demanded by fully developed abnormalities and may be more difficult and less satisfactory.

*F J ARD L COR MD*

Emge L. A. The Repair of Birth Lacerations of the Cervix Uteri. *Am J Obst & Gynec* 1944; 16

Immediate cervical repair at the end of the third stage of labor is feasible and advisable if it is effected by an experienced obstetrician under ideal conditions and proper surroundings. It requires experience in recognizing cervical lacerations at this period and the development of a special technique. It is not devoid of danger but when carried out with proper regard for asepsis will not materially influence the morbidity. It may or may not slightly prolong the patient's stay in the hospital as this depends chiefly upon the type of delivery. It gives excellent results in the cases of primiparous women. 83 per cent do not require any further local treatment. In the cases of multiparous women who have had previous tears of the cervix it is unsatisfactory as healing is prevented by insufficiency of the blood supply.

Under strictest asepsis two of Young's vaginal retractors are introduced into the vagina after the expulsion of the placenta and after 1 c.m. of aseptic ergot has been given intramuscularly. The cervix is then brought into view by pressure over the fundus by an assistant and with the aid of two sponge holders the organ is fully and easily exposed. An ether sponge is then applied to the raw edges. This blanches the tissue and thereby renders the torn connective tissue easily distinguishable. Tears less than 0.5 cm in length are disregarded. All others which usually occur in the angles of the cervix are approximated by single mattress sutures. This type of suturing does away with cutting into the epithelial edges of the lacerations by the sutures in case severe edema develops. The suturing is done with so-called forty day chromic catgut No. 3 threaded on large Mayo needles. Great care is taken to tie the sutures just tightly enough to approximate the edges of the laceration evenly with allowance for the slight amount of swelling that takes place soon after delivery. Primary union usually occurs within twenty-four to forty-eight hours after this length of time the value of the suture is problematical. EDWARD L. CRAWFORD

Judd A. M. A New Type of Cesarean Technique. *N J M J & Med R* 1933; 11: 572

Following a review of the history of cesarean section the author states that in cases of frank infection all types of the operation including the Porro procedure are definitely contraindicated. The only possible exception is the Latzko operation as practiced by Davis.

Judd believes that it is a great mistake to do a hysterotomy before a hysterectomy and to expect the pelvic lymphatics to care for the infection. He therefore advocates hysterectomy followed by hysterotomy of the extirpated uterus. The procedure should not take longer than five to seven minutes after the clamps have been put in place.

The article is concluded by the following statement: This method of procedure I have carried out

in two cases up to this writing. My success in both cases in securing a living mother and child proves nothing except that it is easily done.

ROLAND S. CROW, M.D.

Stone M. J. Report of a Case of Postmortem Cesarean Section. *N York M J & Med Rec* 1923; cxvi: 571

The case reported was that of a multipara who died of bronchopneumonia and pulmonary edema. The section was performed one minute after death. The fetus was resuscitated after thirty minutes of stimulation but died fifteen hours later.

While every attempt should be made to save the child it is always advisable to have another physician verify the death of the mother. The survival of the child depends on various factors. The best results are obtained when the section is done during the first seven minutes after the death of the mother.

ROLAND S. CROW, M.D.

### PUERPERIUM AND ITS COMPLICATIONS

Clauser F. Functional Tests of the Kidney in the Puerperium. (Sull esame funzionale dei reni nello stato puerperale). *Rivista di ginecologia* 1923; 1: 25

Clauser discusses at length the several tests of renal function thus far devised and then describes his modification of Nyiri's sodium hyposulphite method as follows:

The bladder is emptied and the urine is kept as a control. Ten cubic centimeters of 10 per cent sodium hyposulphite are then injected intravenously and the bladder is tapped one, two, and three hours after the injection, each specimen being carefully labelled and measured. Twenty cubic centimeters of the urine to be tested are shaken thoroughly with 0.5 gm of animal charcoal for two or three minutes and then filtered. To 10 c.c.m. of the filtrate is added a little starch solution and titration is carried out against tenth normal iodine solution. The end point is reached when the blue color is fully developed.

The amount of iodine solution used multiplied by 15.8 gives the amount of substance in 10 c.c.m. of urine that is capable of binding iodine. Such substance is found in variable quantities in all urines and most of it can be removed with animal charcoal. The amount not removed by charcoal in a given case is determined in the control specimen by the test described and the figure thus obtained is subtracted from the figure obtained in the test specimen. The resulting figure representing the amount of hyposulphite in the given specimen. In the three-hour period after injection the normal kidney will excrete from 30 to 40 per cent of the amount of hyposulphite injected. The degree of renal insufficiency is indicated by the difference in the amount of the drug excreted from the amount normally excreted.

Clauser carried out the test in women in the last three months of pregnancy, in others in labor and in others after delivery. A number were tested through the three stages.



The test is very reliable. In some cases it disclosed renal insufficiency that would ordinarily be overlooked. Clausen advances the opinion that the kidney of the pregnant woman is never a truly normal kidney.

The definite decrease in function which in the ordinary pregnancy is usually moderate becomes marked during labor but does not give rise to serious trouble possibly because of the shortness of this stage. During the puerperium the kidney usually regains its function in less than five days. The retention in eclampsia is often less grave than that in ordinary chronic nephritis accompanying pregnancy. Therefore it is necessary to watch the kidneys of pregnant women since chronic nephritis often takes an insidious course and may escape timely detection unless proper functional testing is done.

SILVATORE DI LIMA M.D.

Gauthier and Lapointe. Three Hundred and Fifty Cases of Puerperal Fever Treated by Curettage and Continuous Irrigation. (French) *Revue de Gynécologie et d'Obstétrique* 1923, 17, 463.

In 350 cases of postpartum infection treated by curettage and continuous irrigation of the uterus there were only three deaths. After curettage the uterine cavity was irrigated with a constant flow of sterile water or saline solution by means of a small non-perforated catheter and a somewhat larger and perforated catheter. This treatment which was begun from two to eight days after the first signs of infection caused a rapid fall in the temperature.

LOYA F. D. M.D.

### NEWBORN

Rosenfeld E. A. The Physiological Loss of Weight in the Newborn and Its Control. *J. Obstet. Gynec.* 1923, 17, 28.

In most newborn infants the loss of weight occurring after birth may be related with equilibrium. In the cases of very small infants particularly those that are premature the physiological loss may be difficult to overcome and may be great enough to jeopardize life. When the child begins to weigh most infants are exposed to avoid the loss is appreciably less. Maintenance of the body surface temperature throughout the first day of life and the administration of proper amounts of fluid by mouth may conceivably prevent it entirely.

The loss of weight occurring during the first days of life is a physiological process. Most infants after birth are exposed to temperature change amounting to a fall of 30 degrees. In the case of 169 infants in which the child was prevented with a towel in the first twenty-four hours averaged 3.4 oz. and the relative loss averaged 3.2 per cent. In the series of 124 infants who were exposed to the temperature change there was an actual average loss of 4.6 oz. and a relative average loss of 4.6 per cent. The loss

of weight in infants who were used as controls (not being exposed to heat) was 43.7 per cent more than the loss sustained by those so exposed.

FRANK L. CRYELL M.D.

Walther P. and Lelievre A. Polycystic Kidneys and Meningocele in Three Consecutive Infants. (French) *Revue de Gynécologie et d'Obstétrique* 1923, 17, 435.

The authors report the case of a woman who in three successive pregnancies gave birth to an infant with a meningocele at the posterior extremity of the superior sagittal sinus and with large polycystic kidneys. Death occurred shortly after birth and an autopsy was performed.

The article is concluded with a historical review of the various theories which have been advanced regarding the pathogenesis of the type of kidney lesion.

ALBERT F. DE COU M.D.

### MISCELLANEOUS

Anpach B. M. The Trend of Modern Obstetrics - What Is the Danger? How Can It Be Changed? *J. Obstet. Gynec.* 1923, 17, 566.

Routine induction of uterine contractions and routine prophylactic forceps are dangerous for the child.

Labor should not be begun or ended routinely. Induction of contractions and forceps should be employed only if they are definitely indicated for the sake of the mother or the child.

The usual fetal mortality in labor is between 1 and 2 per cent in other words that percentage of infants at term will be born dead irrespective of the method employed. In a report of a series of cases the details of early fetal death should be given. The usual fetal mortality in consecutive obstetrics may be estimated at about 1 per cent.

The woman in labor should have the constant and continuous attention of a competent obstetrician. The practice of obstetrics should be arranged on the basis of practical patient care with this as the object of all routine methods. It should be based on the maternal and fetal mortality statistics which will be improved.

EDWARD CORNELL M.D.

Hendry W. B. The Teaching of Obstetrics and Gynecology. *J. Obstet. Gynec.* 1923, 17, 533.

The author discusses the teaching of obstetrics and gynecology with particular reference to the system followed in the College of Medicine of the University of Toronto.

The course in obstetrics and gynecology should include the final two years. In the first of these the subjects are covered by series of lectures and lectures. Ninety lectures in gynecology and the principles and practice of obstetrics and gynecology will be twenty demonstration surgery.

history taking the mechanism of labor pelvic measurements the use of instruments pathology etc one sixth of the class attending each demonstration When the classes are small the demonstrations are of much greater value than when they are large

The bedside clinic is the ideal method of teaching but has its limitations as its effectiveness depends on the number of students attending and the amount of clinical material available

The junior year is largely didactic but the final year is almost entirely clinical During that time the students have their headquarters in the obstetrical building and absorb the atmosphere of the department

Special attention is paid to the student's training in antenatal care abdominal palpation and pelvic examination and the course is made as practical as possible The laboratory side of the training is not

neglected however both gross and microscopic specimens of conditions under discussion being demonstrated at the clinics

EDWARD L CORNELL M D

Mackenzie W R Roentgenographic Pelvimetry  
*J Obst & Gynec Brit Emp* 1923 xxx 556

A standard plate for pelvic measurements is necessary and the patient must be roentgenographed in the position of the standard pelvis with the same point of focus and with the X ray tube at the same angle to and the same distance from the sensitive plate

The X ray shows the variety of the pelvic contraction distinctly and the various pelvic diameters can be worked out with ease Another advantage of roentgenographic pelvimetry is that it subjects the patient to less discomfort than other methods

EDWARD L CORNELL M D

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

**Perrier: Chronic Enter renal Syndrome with Nephroptosis Colectomy Nephroxy Cure**  
(Syn from the renal ch... ec néphr... it se  
lect m. néphr... p... gué... ) J d... i mid  
164 1923 7 424

Perrier reports the case of a woman 28 years of age who had suffered from enterocolitis with diarrhea since the age of 12 years. The urinary condition became associated with lumbar pain on the right side, symptom of cystitis, edema of the ankles, headache, stupor and persistent vomiting. The right kidney was easily palpable and painful and the renal pelvis was dilated. The urine was loaded with colon bacilli. Lavage with collargol afforded no relief. On several occasions there was hematuria. A cure was effected by a colectomy with ileosigmoidostomy and nephroxy.

LOVELL DAVIS, M.D.

**Brettauer J. and Rubin I. C. Hydro-Ureter and Hydronephrosis A Frequent Secondary Finding in Cases of Prolapse of the Uterus and Bladder** Am J Obst & Gynec 1913 1 606

The authors studied six cases of complete procidentia with a large cystocele and four cases of partial procidentia. In the latter the cervix was markedly hypertrophied and ligated. One was the result of the uterus that protruded through the introitus. Hydro-ureter and hydronephrosis were present in eight of the cases. In two the ureters examined in situ failed to show any abnormality. It is interesting to note that the latter two cases of partial prolapse in one there was a large cystocele and in the other a cystocele of moderate size. In four of the hydronephrosis was bilateral. A complete prolapse was associated with a large cystocele and bilateral kidney ureter dilatation. In the case of an elderly multipara with slight cystocele dilatation of the renal pelvis was bilateral but moderate. In a case of large cystocele with uterine prolapse there was moderate unilateral hydronephrosis showing that the dilatation of the bladder itself causes ureteral stasis and dilatation.

Lesser cystocele were seen by only three of the patients. One had a unilateral hydronephrosis and another moderate bilateral hydronephrosis. The latter had gone without the pessary for eight months preceding the examination. In the third case no dilatation was found but the patient wore a pessary at irregular intervals.

In general it may be said that the older the patient and the longer the duration of the prolapse the more probable that dilatation of the kidney pelvis and ureters will be associated with it. From the high incidence of hydro-ureter and hydronephrosis in

cases of prolapse of the uterus with cystocele (80 per cent of the cases forming the basis of this study) it is logical to conclude that there is an important etiological relationship between the two conditions. The importance of early operation to correct the uterus and genital prolapse must be recognized. In inoperable cases a pessary will relieve the prolapse and save the kidneys from secondary damage.

In advanced neglected cases it becomes all the more important to study and conserve kidney function before undertaking operative correction of the prolapse. Greater attention to the phenolsulphone phthalein and indigo carmine output and to examination of the blood for nitrogen retention etc. may indicate the extent of kidney damage in a woman with genital prolapse. To determine the degree of ureteral dilatation simple testing of the capacity of the renal pelvis and ureter by the use of sterile water alone will be sufficient. The injection of sodium iodide or sodium bromide in solution should be reserved for doubtful cases.

It may be well also in undertaking established operations for the cure of uterine prolapse or in planning the method to consider the relief of the ureter and kidney dilatation. Postoperative ureteral examination will ultimately indicate the best procedure for these cases. At the present time it may be stated that ventrosuspension with vaginal plasticity will meet the requirements. Care should be taken however to avoid dilating the uterus too high.

As the cystocele plays an important part in the production of the renal dilatation early operation is therefore of importance.

LOWELL COVILL, M.D.

**Francois: Three Cases of Renal Colon Bacillus Infection Due to Caecal Stricture Which Were Cured by Intestinal Anastomosis** (Translation from the French) J d... i mid... 164 1923 7 425

In the case of an infant with a dilated colon a fistula cure was effected by simple anastomosis. In the case of a child an ileostomy and an ileoanastomosis resulted in complete alleviation of the symptoms and disappearance of the bacilluria.

LOVELL DAVIS, M.D.

**Crandon: A Retrolux in the Opposite Kidney in the Course of Renal Affect** (Le reflux rétroal dans le second rein) J d... i mid... 164 1923 7 427

Ureteral reflux is of three types: (1) bilateral (2) unilateral in a diseased kidney the other kidney being normal and (3) unilateral in a healthy kidney with a surgical lesion on the opposite side.

From a study of the last type mentioned the author concludes that ascending tuberculous infection of the opposite kidney is possible as the result of ureteral reflux but is not common. Therefore in a case of suspected bilateral renal tuberculosis it is necessary to search very carefully for the signs of ureteral reflux. In many cases the opposite kidney may be protected by removing the tuberculous kidney and treating the bladder.

LOYAL E. DAVIS M.D.

**Léry R. Accidents and Complications in So Called Cured Renal Tuberculosis** (Désaccidents et complications dans le traitement des tuberculoses rénales) *J. d. méd. et ch.* 1923 VI 352

From a study of six cases of so called cured renal tuberculosis the author concludes that a large mass of necrotic kidney may be the result of a closed or a primarily open tuberculosis. In the first instance the ureter is not necessarily impermeable. The disjunction rests upon the presence or absence in the history of the clinical symptoms of an open renal tuberculosis. Neither the massive necrosis of the kidney nor its occlusion by ureteral obliteration prevents the occurrence of very grave complications such as involvement of the opposite kidney, infection of the lower urinary tract, particularly the bladder, pyonephrosis or perinephritis. These may be interpreted as manifestations of the persistence or the results of an active tuberculous lesion and may be acute or chronic. General conditions such as toxæmia with fever, albuminuria, pyuria, cystitis and bilateral lumbar pain may also result. If the patient's physical condition immediately improves and all pathological phenomena rapidly disappear after the removal of the diseased kidney, it is evident that the general symptoms were the result of the renal tuberculosis.

LOYAL E. DAVIS M.D.

**Raffin. End Results of Nephrectomy for Tuberculosis** (Résultats définitifs de la néphrectomie pour tuberculose) *J. d. méd. et ch.* 1923 X 428

Of the author's series of patients, 6 per cent died within a month following operation, 12 per cent died within the first six months, 5 per cent within the second six months, 16 per cent within the first four years, 12 per cent within the first six years, and 5 per cent within ten years following operation. On the other hand, 44 per cent are living more than ten years since the operation. In 20 per cent of these cases a cure was effected, in 10 per cent the urine shows an occasional red blood cell or a small amount of pus, in 2 per cent it is clear but causes tuberculous inguinal pigmentation, and in 8 per cent it is still purulent.

LOYAL E. DAVIS M.D.

**Hertler A. F. Bilateral Nephrolithiasis Operation Under Local Anesthesia** *S. g. Ch. A. Am.* 1923 53

The author describes a case of bilateral calculus pyonephrosis in a 50-year-old woman who had had symptoms for twelve years and had been refused operation on account of her poor condition.

X-ray plates showed a number of large stones in each kidney. It was decided to operate on the right side under local anesthesia. The pelvis of the kidney was opened with the electrocautery without freeing the organ from its bed. Most of the stones were removed in this way, but a partial nephrotomy was also necessary. After a stormy convalescence the patient left the hospital.

Seven months later she was readmitted for an operation on the left side. Besides stones a large pyonephrosis was found. The convalescence following this operation was less stormy than that following the first one. The patient was discharged with urinary sinuses in each loin. X-ray plates showed stones remaining in the right kidney. In the following six months the patient gained 30 lb.

In operations of this type the author makes long low incisions so as easily to reach the lower pole of the kidney, does not attempt to free the kidney from its bed, and opens the pelvis or the kidney itself with the cautery as necessary.

HENRY L. SANFORD M.D.

**André. End Results of Operations for Renal Calculus** (Résultats définitifs des opérations pour lithase rénale) *J. d. méd. et ch.* 1923 XI 429

Calculus seldom recur in a non-infected kidney from which they have been removed if the patient is given proper medical treatment. After the removal of a calculus from an infected kidney it is necessary to lavage the pelvis frequently and persistently. The function of the treated kidney is better than before operation. The occurrence of stone in the opposite kidney after nephrectomy is not greatly to be feared.

LOYAL E. DAVIS M.D.

**Boppe and Brouet. The Points of Exit and the Course of the Posterior Branches of the Spinal Nerves in the Zone of the Lumbar Incision for Nephrectomy** (Contribution à l'étude des points d'émergence et du trajet des branches postérieures des nerfs rachidiens dans la zone de la cicatrice lombaire) *Ch. et ph. exp. B. II et mém. Soc. anat. de P.* 1913 C 311

The induction of regional anesthesia sufficient for nephrectomy by blocking the nerves of the lumbar wall and the visceral nerves to the kidney is difficult. Infiltration of the splanchnic nerves will anesthetize the kidney, and the anesthesia may be completed by infiltrating the twelfth dorsal and first two lumbar nerves. This can be accomplished by a single injection at the lower border of the twelfth transverse process at the paravertebral line. The needle is inserted here is directed first upward and then downward.

In some of the cases reported the anesthesia was incomplete, this being due to anatomical factors. In the region from the twelfth transverse process to the iliac crest between the psoas and the lateral wall the skin is innervated by the posterior branches of the dorsal and lumbar spinal nerves. The authors investigated this nerve distribution in six cadavers.



kidney lesion and the other from marked involvement of both kidneys. Most of the patients had extensive bladder cancer and were in poor condition. The six patients who recovered from the operation were greatly relieved and survived for a period of months. Only one patient operated upon for exstrophy of the bladder has survived. Two months after operation the urethral skin orifice required dilatation.

Two possible accidents are stricture of the outlet and a cecid infection. Stricture is combated by dilatation. Ascending infection usually occurs sooner or later and is favored by stenosis of the orifice or suture of the ureter at operation. In the author's opinion the relief given in cases of inoperable cancer of the bladder which usually have a rapidly fatal outcome more than compensates for the ascending infection especially since the latter may be retarded by cleanline urinary antiseptics and silver nitrate irrigations.

The indications for the operation are painful affections inoperable tumor or an advanced tuberculous of the bladder ulcerated tumor of the prostate uterine neoplasms which have invaded and perforated the bladder and certain cases of exstrophy of the bladder that do not permit the use of a good apparatus. It is especially indicated by inoperable prostatic and vesical tumors.

Suprapubic cystostomy may be followed by invasion of the hypogastric fistula by the tumor. Permanent bilateral nephrectomy is more difficult to get to kidney function and greater difficulty in the postoperative care. Implantation in the intestine has a high operative mortality and favors the development of severe pyelonephritis.

Permanent bilateral iliac ureterostomy is a palliative operation which renders service to both the patient and the surgeon especially in case of inoperable cancer of the bladder. It places the bladder at rest facilitates all treatment of the disease and renders existence tolerable.

WALTER C. BREKET M.D.

## BLADDER URETHRA AND PENIS

Grave R. C. and Davidson M. Studies on the Urethra and Bladder with Special Reference to Regurgitation of the Vesical Contents. *J. Urol.* 1933, 35.

In this article the authors report the results of experiments on rabbit with regard to the occurrence of regurgitation of the bladder contents.

Of seventy-three normal rabbits the bladders were filled slowly with a 10% physiological salt solution 75% of the rabbits showed the phenomenon. In a series of group experiments the ureters were first rendered abnormal by operation. Regurgitation occurred in 78% of the cases.

In the third group of rabbits in which the attempt was made to produce regurgitation by causing prolonged retention of urine subsequent

laparotomy showed that reflux had occurred in one but the findings of these experiments are open to question as it was impossible to determine whether transitory regurgitation had occurred.

In a fourth group of eleven normal animals fluoroscopic examination revealed the phenomenon in six.

It was found that in normal rabbits regurgitation depends chiefly upon good bladder tone, also that bladders which were relatively empty and contracted at the beginning of the preparation caused reflux twice as frequently as those which had been distended with large amounts of urine.

The degree of ureteral activity has little bearing on vesical regurgitation.

On the basis of the findings the authors conclude that bladder regurgitation may account for ascending infections of the urinary tract particularly in the presence of obstruction of the neck of the bladder.

C. D. HOWES M.D.

Blanc H. The Interureteral Bar (A propos d'un barrière urétérale). *J. d'Urol. Méd. Chir.* 1923, 1: 274.

The author reports two cases of a malformation of the urinary bladder described as an interureteral bar. Other cases are cited from the literature.

This condition may be congenital or produced by senile changes within the bladder. More commonly, however, it occurs as the result of urinary retention caused by hypertrophy of the prostate particularly by hypertrophy of the median lobe. In some cases it may follow retention due to vesical paralysis.

Young's explanation of this interureteral bar is quoted. Young regards the malformation as a hypertrophy of the trigonal muscle. This muscle which is continuous with the longitudinal muscle fibers of the ureters and is superimposed upon the musculature of the bladder wall has an important function in micturition. In the presence of obstruction to the urinary outflow it becomes greatly hypertrophied and since normally during contraction it divides the bladder into two parts it may produce the same result pathologically.

The symptoms caused by the interureteral bar are analogous to those produced by hypertrophy of the prostate. The treatment must be directed toward the factor causing the urinary obstruction. When the bladder is noncontractile removal of the bar may ameliorate the symptoms temporarily.

LOYAL E. DAVIS M.D.

Watson E. M. The Trigone Surgically Considered. Its Pathology, a New Method of Diagnosis and Its Operative Management. *J. Am. Urol. Ass.* 1931, 1: 753.

The pathological changes of the trigone have not received the study due them although enlargement of the subtrigonal gland is generally recognized and operative removal understood. The hypertrophied interureteric ligament or Mercier's bar produces a basal fundus containing variable amounts of residual urine. This hypertrophy is secondary to obstruct

tive lesions of the lower urinary tract and is augmented by superimposed infection

Three forms of pathological changes are considered  
1 Simple muscular hypertrophy In this condition the trigone is thickened the surface is puffy and edematous round cell infiltration is present beneath the mucous membrane and beneath the barrier of round cell infiltration loose fibrous tissue extends to the bladder muscle

2 Muscular hypertrophy and round cell infiltration associated with an increase in the size and number of the subtrigonal gland tubules which differ in size and shape from hypertrophied Holmes glands never definitely project into the bladder and occupy the upper third of the trigone far beneath the interureteric ligament almost on the bladder musculature Holmes glands are found in the lower third of the trigone just within the vesical orifice

Types 1 and 2 are observed in the presence of urethral stricture and median lobe enlargement with long standing cystitis and infected urine

3 A form without appreciable muscular hypertrophy no glandular elements and no evidence of round cell infiltration This type of trigone forms a thin ridge and appears as a thin membrane in the bladder It is found in long-standing cases of prostatic hypertrophy without infection of the bladder urine for any length of time

The diagnosis may be difficult but may be made by filling the bladder two-thirds full and making a cystogram The cystogram will show a somewhat hour glass outline of the bladder due to the trigonal pull on either side If a cystogram is then made with the bladder filled to its full capacity the hour glass outline will not be seen

The treatment is removal of the obstruction through a perineal urethrotomy in the membranous urethra or suprapubic cally

HARRY W FLAG MEYER M D

Goldstein A E and Lutz J F A New Procedure for Performing Litholapaxy J Am M A 1923 18 3: 1931

The authors believe that an uncomplicated case of vesical calculus litholapaxy is the operation of choice In their method of treating such case the patient is placed on a fluoroscopic table The bladder is catheterized irrigated with an antiseptic solution and distended with air to its full capacity through the urethral catheter by means of a 50-cm syringe The catheter is then removed and the lithotrite introduced The beak of the instrument may be seen easily through the fluoroscope The bladder is opened and closed and turned from side to side The calculus is then grasped and the blades are locked and again turned from side to side If the blade of the instrument pinch the bladder mucous membrane is indicated in the fluoroscopic picture by a change in the form of the air shadow of the bladder

After the calculus is crushed and the lithotrite has been removed fragments of the stone are washed out by means of the usual evacuator and the larger

pieces are picked up with a cystoscopic rongeur The rest are left to be passed out in the urine The author describes the X ray technique in detail

The injection of 3 oz of a 5 per cent solution of procaine into the posterior urethra and bladder fifteen minutes before the introduction of the lithotrite is fairly effective in rendering the bladder insensible but better results are obtained with spinal or sacral anesthesia

The advantages of the method described are that the work is done under visual control the time of operation is reduced the danger of hemorrhage and trauma is excluded and stones of large size may be crushed

HENRY L SAYFON M D

## GENITAL ORGANS

Maclaure P Testicular Grafts in Animals and in Man (Les greffes testiculaires chez les animaux et l'homme) Arch de med 1933 18 3: 53

Maclaure believes that homoplastic pedicled or free testicular grafts are indicated in cases of ectopic testicle and very voluminous inguinal hernia cases of erythroblastosis and cases of grave mental disturbance following castration The graft should be placed in the scrotum or in a muscle

Autoplastic homoplastic and certain heteroplastic grafts give immediate results which cannot be doubted but the graft survives for only a short time

W A BEEHAN

Lutmann A A and Gibson T E Transplantation of the Testicle in Children J Surg 1923 1: 76

The authors report a case of a malignant tumor in a boy 10 years of age which originated apparently in the left testis recurred after removal and extended along the left spermatic cord to the retroperitoneal lymph nodes and thence by way of the lymphatics and blood stream to the pleural lungs diaphragm and liver The diagnosis embryonic carcinoma (Lewing) was most apt in this case even though it showed no lymphoid stroma and the extent and the size of the metastases were most unusual The growth could not be grouped with the seminomas of Chevrass as it showed none of their characteristics

There are two large groups of testicular tumors the teratomata (heterologous tumors) and the seminomas (homologous tumors) The other types are extremely rare The homologous tumors are so rare that they may be disregarded Sarcoma of the testis is a misnomer as the vast majority of malignant tumors are of epithelial origin

In children testicular tumors are relatively infrequent A few dermoids have been reported The majority are congenital developing without previous trauma They are relatively more frequent in undescended testes than in normally situated organs Both sides are affected with equal frequency Bilateral tumors are rare

As a rule the tumors resemble a hen's egg in size and shape and sometimes are differentiated from hydrocele or hæmatocele, tuberculosis or gumma only with difficulty. Some are hard and nodular, others are smooth and still others are cystic and fluctuant. The overlying skin is rarely invaded but sometimes becomes discolored and shows varicosities. Fatal hæmorrhage may occur with rupture through the skin. The development is usually asymptomatic. Pain indicates involvement of the tunica albuginea. This is followed by cachexia and death or generalized metastases. The authors case showed the largest and most extensive metastases ever reported.

Teratoma is the type of tumor most often found in infancy and early childhood. Seminomas are usually found in later life.

The prognosis of malignant testicular tumors, especially teratomata, is very grave. Simple castration is inadequate.

LOUIS NEUWELT, M.D.

### MISCELLANEOUS

Von Lackum W. and Hager B. H. Mercurochrome 220 Soluble as a Valuable Adjuvant to the Silver Compounds in the Treatment of Gonorrhea and Its Complications. *J. Am. M. A.* 1923 LXXVI 940

From an experimental investigation of the clinical value of mercurochrome 220 soluble the following conclusions were drawn:

1. Solutions of mercurochrome are very unstable and should not be used if they have stood longer than seventy-two hours.
2. Tolerance of the gonococci results if the treatment is continuous.
3. In the urethra 0.25 per cent solutions are just as efficacious as stronger solutions and cause no distressing symptoms.
4. Mercurochrome is not a substitute for silver compounds but is most effective when used in conjunction with them.

To the previous routine form of treatment for acute gonorrhoea in the male, which for convenience was divided into four periods ranging from seven to ten days each, the use of a freshly prepared mercurochrome solution has been added.

**First period**—mercurochrome with protargin mild (argyrol). The patient is instructed to use after urinating an anterior urethral injection of 0.25 of 1 per cent freshly prepared solution of mercurochrome four or five times daily for three days, then to alternate with a 5 per cent solution of protargin mild (argyrol) for three days, and at the end of the latter period to use the mercurochrome again. During this time he is given office treatment daily: a 1 per cent solution of mercurochrome or a 5 per cent solution of protargin mild is injected into the anterior urethra and promptly followed by anterior and posterior urethral injection of 1 per cent mercurochrome or 5 per cent protargin mild. The former is retained for ten minutes by means of an ordinary

rubber band placed around the glans between the corona and the meatus. The drug used in the office treatment is the opposite of that used by the patient.

**Second period**—mercurochrome with protargin strong (protargol) and protargin mild. The protargin mild injections are replaced by 0.5 per cent protargin strong solution, a 0.5 per cent solution of mercurochrome being used for alternate periods of three days each. The daily office treatments of anterior and posterior injections of 1 per cent mercurochrome and 5 per cent protargin mild are continued.

At the end of the first period there is much less discharge and the secretion is usually free from gonococci. With the changed treatment however an increase in the discharge is often noted in the second period and often the organisms occur temporarily, the result of the stimulating and desquamative action of the protargin strong. The increased discharge usually subsides by the end of the second period but sometimes the treatment must be prolonged for a few days.

**Third period**—stimulation. At this time there are ordinarily no subjective symptoms and slight if any objective signs. A small sound is passed for the purpose of making a background over which to express the urethral follicles and to flatten out granulations. This is followed by the slow injection into the anterior and posterior urethra of a 1 per cent silver nitrate solution which is massaged lightly into the tissues. Repetition of this treatment depends on the recurrence or absence of symptoms. In the absence of symptoms the treatment is repeated with sounds of increasing size and on intermittent days by catheter irrigations (Diday method) of weak warm potassium permanganate to which a little weak silver nitrate solution is occasionally added. During this period the prostatic secretions are expressed for examination as infection of the prostate follicles usually takes place and as a rule slight massage of the prostate at this time prevents future trouble in the gland.

**Fourth period**—irrigations. At this stage resolution occurs rapidly and the urine is carefully watched. If a few specks remain an occasional sound and possibly the injection of 1 per cent silver nitrate may be necessary. Further light expression of the prostate may sometimes be required. Increasingly weaker hot potassium permanganate Janet irrigations are continued daily. If the condition seems somewhat resistant anterior and posterior Kollman dilators may be passed and the urethra dilated to 33 or 35 F. after which a urethral injection of 1 per cent silver nitrate is given. In the absence of reaction the hot irrigations are continued for several days and the patient is then dismissed from observation.

The foregoing division is of course arbitrary for personal judgment must be exercised in all cases. The periods may be lengthened or shortened.

The experience of the authors leads them to believe that if the treatment described, terminated with mechanical, chemical and instrumental stimulation



does not produce evidence of infection any remaining organisms are so attenuated that the improved bodily resistance will soon destroy them.

The treatment of patients with early chronic gonorrhea and its complications has been varied to meet the symptoms. Protargin strong and mercurochrome to the urethra and local care of the urethral adnexa appear to be indicated. If a discharge persists the urethral adnexa will usually be found to harbor infection and prompt response will result from additional massage of the prostate vesicle stripping light dilatation with a Hottelmann dilator and massage of the urethra over sound. It follows a few injections of silver nitrate alternated with mercurochrome.

The treatment of gonorrhea in the female during the acute stage is begun by swabbing the cervix and vault with tincture of iodine or a 2 per cent solution of silver nitrate. If there is squamous erosion after which the protargin mild and mercurochrome

treatment is begun. The vagina is wiped dry pure crystals of mercurochrome are placed in the os of the cervix and the vault is swabbed out with a 1 per cent freshly made mercurochrome solution. This is alternated daily with protargin mild crystals in the os and swabbing of the vagina with a 3 per cent protargin mild solution. The urethra is injected daily 0.5 per cent mercurochrome being alternated with 3 per cent protargin strong. The patient is instructed to use hot weak solutions of potassium permanganate as a douche from two to four times a day and to sit in a tub of hot water five minutes each night and morning. This treatment is continued for approximately two weeks after which it is alternated daily with weak solutions of silver nitrate and 5 per cent solutions of protargin strong to the cervix and vault. The daily douches are changed from potassium permanganate to warm saline solution (3.75 c.c.m. of the tincture of iodine to 1,000 c.c.m. of water). B. H. H. & M. D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

**Leiche and Haour** Regeneration of the Daph  
yses of the Adult Rabbit After Re-ection  
Experimental Research Regarding the Rôle of  
the Periosteum (De la rég-é-ation de daphyses  
h le lapin ad lte ap-é-ré-é-t-n daphy-ire  
h hes expérim-ent l su l-ôl du pé-ost )  
Lv chr 1923 x 838

This is a brief report of a series of experiments on the regeneration of bone which were begun in 1920. The following procedure was carried out:

1 Subperiosteal resection with detachment of all bone spicules and careful reconstruction of the periosteal sheath. This operation resulted in complete regeneration which was far advanced in twenty-eight days.

2 Subperiosteal resection without the removal of loose bone fragments and without reconstruction of the periosteum. This experiment was not followed by regeneration as late as ten months.

3 Subperiosteal resection with the removal of all bone spicules but without suture of the periosteal sheath. The X-ray showed no bone regeneration at the end of 103 days and none as found at necropsy at the end of ten months.

4 Extraperiosteal resection of the radius followed by the interposition of a human vein filled with coagulated blood. No regeneration occurred after six months.

5 Detachment of a pedicled flap of periosteum and bone fragment from the tibia and its insertion in the muscles of the leg beneath the fascia. Ossification of the flap was rapid and could be seen by means of the X-ray within twenty days.

6 The same operation as No 5 but with severance of the pedicle. No ossification occurred.

The authors conclude that in the absence of periosteal ossification does not occur even when bone fragments are present. Periosteum does not produce bone but becomes ossified. Other words it plays a passive not an active rôle. In the adult the periosteum has no physiological function but it may be given a function by the surgeon.

LEXLEY D M D

**Delchiel** Congenital Li-ation of the Scapula  
(L-élé-ation g-é-t-i-d-i-m-pl-i-t) Rec-d  
th p 93 6

Congenital lesion of the scapula should be considered as the expression of a ductal embryonic segmentation which entails malformation of the axial skeleton and of the muscles of the scapular region. It is the result of a retention of the normal migration of the scapula.

The supernumerary bone parts described in a number of case reports are therefore not the cause of the malformation but only accidental complication.

Physiotherapy and orthopedic treatment are of value only from the standpoint of the prevention of secondary scoliosis. Severe cases and especially those with limitation of movement present indications for surgery. W A BRENNAN

**Davis J S** Arm Chest Adhesions Brachiothoracic Adhesion Axillary Webs J B e c  
J it S rg 9 4 vi 167

This article is based on forty-eight cases treated by various surgeons at the Johns Hopkins Hospital Children's Hospital School Baltimore and in private practice. Davis states that the adhesions are not always preventable as the patient's condition at the time the adhesions are forming may interdict proper treatment. Practically all of the cases reviewed were due to third degree burns.

The author discusses the literature and the various treatments proposed. He states that no single operative procedure is applicable to every type of axillary web. In nearly all of the cases reviewed several operations were necessary to restore function completely and in each of the secondary operations new problems were presented which required different methods of attack. The efficiency of an operation for the relief of arm chest adhesions can be determined only after the lapse of considerable time; therefore the end results should not be recorded before at least one year.

CHRISTOPHER C SCHNEIDER M D

**Porter J L and Lewin P** A Special Corset for Some Back Conditions J Am M f s 1923  
I 13

In an endeavor to obtain a simple, inconspicuous spinal support, the authors have found a special corset very satisfactory. This is not offered as a substitute for the Taylor spine brace. It is presented as a last stage or assurance support to be used in mild back cases or after active treatment has been concluded in severe cases.

It has the advantage that it is inconspicuous. It has been found of great value for several years in the follow-up treatment of cured tuberculosis of the spine, osteoarthritis of the spine, fracture of the spine, scoliosis, back strain, round shoulders, sacro-iliac conditions, polymyositis of the spine and other conditions.

The corset is a front lace corset with a wide pelvic band and shoulder straps. When the steels have been adjusted by means of bar wrenches they are incorporated in the corset and do not show. There

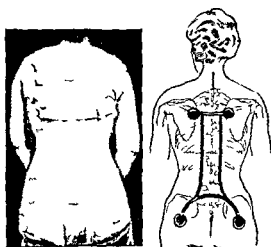


Fig. 1 (at left) Steels without a U band incorporated in the corset

Fig. 2 Outline of corset steel with relation to skeletal structures

is a type of corset with shoulder straps and a type with perineal straps. The types of steel inserts include a long type with a pelvic band, a short type with a pelvic band along type with a U band and a short type with a U band and a long type with an axillary crutch and a long pelvic band with an iliac crest.

Cold rolled steel  $\frac{3}{8}$  by  $\frac{1}{4}$  in. is used because it is malleable and strong. It should be nickel plated. There are two uprights, two cross pieces and two flat round plates at the top. The plates are padded with felt and covered with leather. If a U band is indicated, two similar plates are used below. When perineal straps are used, their ends are secured to the edges of the plates. The steels are fashioned over a plaster of Paris shell of the patient's back. This shell is made as follows:

With patient lying prone, the skin of the back is moistened and the outline of the steels are marked with an indelible pencil. The back is covered with a very thin layer of petrolatum, avoiding the indelible markings. Then six or seven single sheets of crinoline impregnated with plaster of Paris are applied. After ten or fifteen minutes the hardened shell is carefully removed and hung up to dry.

D. M. H. LEVINTHAL, M.D.

Froelich. Chronic Non Tuberculous Arthritis of the Hip in the Young or Growth Coxitis (Descriptive Notes on a Tuberculous Disease of the Hip in the Age of the Adolescent). *Rev. d'Ch. Par.* 1923, 15, 473.

The types of non tuberculous arthritis of the hip may be divided into four classes:

1. Dry chronic coxitis with progressive dislocation of the head of the femur.

2. Progressive burrowing of the acetabular cavity by the intact head of the femur.

3. Juvenile deforming osteochondritis.

4. The essential coxa vara of adolescents.

The author reports the clinical histories and roentgenological findings for twenty-one cases. He states that in evolution and pathological anatomy the condition differs very greatly from the classical coxitis.

Froelich suggests that dry coxitis with progressive wearing away of the femoral head and of the roof of the cavity might be due to some primary malformation of the acetabular cavity or to a congenital dislocation.

The pathogenesis of the second type is obscure. The head of the femur remains intact and the pathological process remains limited to the lower portion of the acetabular cavity which softens and yields beneath the pressure of the head of the femur.

Essential coxa vara of growth is a disease of the epiphyseal cartilage of the upper border of the femur which occurs in subjects between 12 and 18 years of age. It is not strictly speaking a coxa vara. It is rather a growth epiphysitis, the lesion being due to a functional disturbance of the epiphyseal cartilage. It lasts for from eighteen months to two years and when not treated terminates in stiffness of the joint causing more or less pronounced limping.

The differential diagnosis between the different types of non tuberculous coxitis in the child can be made only from a consideration of the X-ray findings in conjunction with the clinical symptoms.

Essential coxa vara is more frequent in males than in females. Histologic examination indicates that the cause is an inflammatory process. This is probably infectious but only exceptionally has the infecting agent been detected. The findings in these of the author's cases suggest that there is some disturbance of the endocrine glands.

The best treatment consists in relieving the joint from the weight of the body as completely as possible. The child should lie down a considerable part of the time and when he stands the thighs should be kept separated by an apparatus to prevent the adduction contraction and the typical deformity of the head of the femur. Bone forming drugs should be administered.

W. A. BRENNAN

Morton, D. J. Evolution of the Longitudinal Arch of the Human Foot. *J. B. & J. N. S. S.* 9, 4, 56.

This paper is the result of research done chiefly at the American Museum of Natural History in New York.

The foot of the lowest monkey, the descendant of small terrestrial quadrupeds, has a very small heel bone, long metatarsals and short digits. The great toe projects from the border of the foot at a wide angle and the longitudinal axis of the long metatarsals through the third metatarsal. The longest digit is the fourth. The foot is suited to grasping the limbs of trees.

The chimpanzee foot shows a longer heel shorter metatarsals and longer digits. The great toe lies closer to the border of the foot and the line of leverage passes between the first and second metatarsals. The longest digit is the third.

In the gorilla the heel is still larger in proportion to the whole foot and the metatarsals are somewhat shorter and thicker. The great toe is closer to the edge of the foot and the leverage line passes between it and the second metatarsal. The longest digit is the third.

In the human foot the heel is of still greater proportionate size making up more than half the length of the foot while in the original monkey it constituted only about one third. The first metatarsal is strongly developed and lies with its great toe parallel with the inner border of the foot. The line of leverage passes between the first and second metatarsals but closer to the first than the second. The longest digit may be the first or second.

The development of the human foot from lower forms follows Wolff's law. Characteristic structure and distinctive function are associated. Hence when there is a change in the manner in which a certain type of foot is used modification of structure is inevitable.

It has been said that the human longitudinal arch developed as the result of the supinated position of the arboreal foot but careful study shows that this original supination flattened down completely when terrestrial habits were adopted and that the arch arose as a result of mechanical leverage. One of the earliest changes was the adaptation of the heel for weight bearing. The shift of the body weight toward the mesial side of the foot as in balancing caused the leverage to come between the first and second metatarsals and necessitated a strong development of the mesial border. In the early arched foot the inner cuneiform rested on the ground causing a break and making a posterior and anterior longitudinal arch. In the further development of flexibility the contact with the ground was broken and the cuneiform was gradually raised thus creating the final long single arch.

When the foot is viewed from above it is seen that in the chimpanzee the great toe and its metatarsal are so far adducted from the inner border that when the heel is raised with the toes as fulcrum there is a break in the line leverage due to the wide separation of the anterior supporting points. As the great toe and first metatarsal approximate the inner border this break is straightened out. In the lateral mesial view it is seen that the os calcis of the gorilla is more nearly parallel with the ground than the human foot and that the articular facets including the sustentaculum slant downward forward and inward. With development of the gastrocnemius muscle group the os calcis changed its inclination. Therefore in the human foot the anterior end of this bone is elevated and the entire bone is rotated outward thus giving a more nearly horizontal plane to the articular facets.

It is evident on careful analysis that the human foot was developed as the result of active leverage action instead of for purely passive weight bearing. A more stable passive foot for supporting weight would have resulted if the first metatarsal had been kept in its original adducted position but facility of action would have been impaired. The tendency of the human foot to pronate is explained by the fact that only a slight degree of inward rotation of the os calcis is necessary to disturb the level of the articular facets to such an extent that the weight thrust tends to push inward from these frictionless facets.

WILLIAM A. CLARK M.D.

#### Allison N. Apophysitis of the Os Calcis. A Clinical Report. *J Bone & Jo Surg* 1924 vi 91

Apophysitis of the os calcis is described in text books as painful heel causing difficulty in walking and in rising on the toes. It is a self limited disease and does not result in permanent disability or deformity. It has been thought analogous to Osgood's disease of the tibial tubercle the pull of the Achilles tendon causing irritation and loosening of a growing epiphysis. Recent cases observed by the author suggest that the lesion is an osteochondritis due to the same cause as Legg's disease of the upper femoral epiphysis. It occurs in the formative period between the seventh and fourteenth years and usually in rather heavy boys. There is a cap-like epiphysis with roughening and partial disintegration of the bone substance.

Not sufficient time has elapsed to record the end results in the recent cases mentioned but it seems that ultimately there will be a change similar to that occurring in Legg's disease.

WILLIAM A. CLARK M.D.

#### SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

##### Hobbs R. A. A Report of Fifty Nine Cases of Scoliosis Treated by the Fusion Operation. *J Bone & Jo Surg* 1924 vi 3

The fifty nine cases reported were treated at the New York Orthopedic Dispensary and Hospital in the period from 1914 to 1919 the operations being done by four different surgeons. It was possible to study the end results in forty five. The fourteen other patients did not return for final examination. The ages ranged from 3 to 20 years and the length of time between the operation and the final examination from three and one half to nine years. All of the patients showed evidence of infantile paralysis and twenty nine of them had paralysis of the legs as well as of the spine. In nineteen the abdominal muscles were involved eight were unable to sit up. In a large percentage of the cases the scoliosis was marked and in all of them it was progressive in spite of treatment by gymnastics and the application of braces. The earlier cases had very little correction of the deformity before operation. In the later ones an attempt was made to obtain the maximum pre op-

erative correcti n by means of constant traction n the head and pelvis in a frame. Child n will stand a stretching force of 25 to 40 lb.

In the Hibbs operation the periosteum o er the tips of the spinous processes of the vertebrae to be fused is split longitudinally and pushed to either side the processes being left bare. The inter spinous ligaments are also split the lateral hives pushed forward. The dissection is then carried further forward until all the spinous processes the posterior surfaces of the laminae and the base of the transverse processes are bare. The ligamentum sulcavum thus exposed is removed from the laminae with a curette and the articulations of the lateral processes are destroyed to produce ankylosis at these points. A substantial piece of bone is then elevated from the adjacent edges of each lamina the free end of the piece from above is turned down to make contact with the lamina below and a piece from below is turned upward to the midline. Each spinous process is then partially split and turned down so that its tip makes contact with the bare bone of the vertebra below. In the lumbar region the processes are split longitudinally and one half is turned down and the other up. The ligament and periosteum are closed with ten-day chromic gut. The patient must be subventrosteal and thermotherapy must be well controlled by jacking.

Immediately after the operation the patient placed on a bed without springs. After two weeks when the wound is healed the final traction jacket is applied. As the spine is more mobile after the section the greatest amount of correction can be obtained. The traction jacket is left on for six weeks and during this time the patient is kept in bed. A removable jacket is then worn for six to twelve months and at the end of this period all support is removed.

In most of the cases reviewed the number of vertebrae fused was 1 from 2 to 11 but in two cases fourteen and in one case fifteen and in one case sixteen.

In the fifty nine cases there were 201 ankylosis to lordosis pneumonia and one to actin. Infection occurred in one case.

Occasionally natural fusion was found at operation but it never extended over a sufficient area to prevent progress of the deformity. In these seven cases much improvement in the alignment of the spine of some of the subjective symptoms were relieved and an increase of the curve was prevented by permanent fusion.

Excellent results were of nine 48.9 per cent of the cases. With some minor regression the results were practically normal. In 35 per cent the result was good the deformity stationary and the patient in good condition at last. In 8 per cent the result was fair. In 6 per cent it was poor because of extensive paralysis.

The fifty nine cases are referred to in the article is supplemented with twenty three illustrations. The author's conclusions are as follows.

1. We have in fusion a means of preventing progress of the deformity in paralytic scoliosis.
2. The operation should be done before gross deformity has occurred as it is easier to prevent than to correct such deformity.
3. After fusion the upright posture is maintained with greater ease and trunk movement causes less fatigue.

WILLIAM A. CLARK, M.D.

## FRACTURES AND DISLOCATIONS

Sinclair M. Recent Changes in Fracture Treatment. *B. J. M. J.* 1923; i 917.

The first requisite in the treatment of fractures is a satisfactory roentgenogram which demonstrates the site of the fracture the shape and position of the fragments the nature of any joint injuries the presence or absence of gas gangrene and air in the soft tissues and the formation and character of callus and bone union.

Anteroposterior lateral and whenever possible oblique roentgenograms should be made with the bone as free as possible from dressings and metal.

Exact apposition of the fragments is essential as a good anatomical result is essential for a good functional result. Apposition is effected most successfully in the arm and leg with the Thomas splint. Singular emphasis the importance of equipping ambulances with Thomas splints.

If non-operative attempts to reduction are unsuccessful open operation is necessary. The fracture can be may be plated or bolted. Plates should be removed when the roentgenogram shows bone repair. Wiring has its advantages over plating it may be so much more easily through a small incision and in infected fractures and it uses less metal to the tissue. Bolting is preferable in certain multiple fractures especially those in which the fracture is at a joint.

REYNOLDS, REYNOLDS, M.D.

Ryerson J. W. Treatment of Fractures from an Indirect Standpoint. *J. B. M. J.* 1923; i 914.

Ryerson discusses some of the general points in the treatment of fractures the long bones urging particularly the wider application of physiotherapeutic methods and the use of plaster apparatus in stead of the more convenient but expensive plaster of Paris regular casts. He believes that by these methods the long bones have a less lengthy period of disability but it is his own.

CHARTERIS, M.D.

Boorstein S. W. and Landman I. J. The Treatment of Fractures by Orthopedic Method. *J. B. M. J.* 1923; i 933.

This article consists of the most part of quotation from the literature. The old and new methods are contrasted as follows.

| OLD METHODS              |                          | NEW METHODS         |                      |
|--------------------------|--------------------------|---------------------|----------------------|
| R d                      | f t h f ac               | Immedia             | ed so f th           |
| f th                     | ling h b d               | f t                 | Red so f h fact      |
| R d                      | on f h fra t reb y       | ac                  | da w h l             |
| d ect pull               |                          | m sel               | p ll                 |
| 3                        | Maxim m m m l i z a so f | 3                   | Imm t l i z a t p t  |
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| her t                    |                          | l i d               | t U lly ly           |
| 4                        | Th pplic t               | f t ght             |                      |
| r l ta                   |                          | Th pr l             | f plast              |
| 5                        | Imm t l i z a so f bo d  |                     | t p l t h ped f m    |
| t t by ba d ges b h t f  |                          | t th h pe f th l mb |                      |
| glac                     | l i r e a so h oc        | 5                   | Imm b l i z a ly ff  |
| rr d                     |                          | tly lo g to prev    | l p p g              |
| 6                        | P n la                   | f th sof            |                      |
| parta (h)                |                          | resol d             |                      |
| m sel                    |                          | by                  | ly m sa d            |
| 7                        | Co                       | so good             |                      |
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| 8                        | P l g t co b m t t       |                     | 7 F t o h ma m       |
| bed                      |                          | 8                   | V y ly f t           |
| 9                        | Late ect                 | l d l m             |                      |
| y o c r r g d ung th rea |                          | 9                   | C p d f m ty         |
| m (f en                  | ul ed m                  |                     |                      |
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| Lae f th                 | oe teen y ly             |                     | F eq t v e f h r o e |
| d g th                   | ray                      |                     |                      |

DENNIS W CRILE M D

Duch nge R The Study and Treatment of Fractures of the Malar Bone and the Zygoma (Ét de t r t u m n t de f t d l m l et d y g m ) J d m d d B d 9 3 557

Fractures of the malar bone and fractures of the zygoma must be studied together as the zygoma is a bony bridge formed in part by the malar bone and in part by the temporal bone. Fracture of the cranial bones bear no relation to them.

The cause of fractures of the malar bone and the zygoma is direct violence which displaces the bone either inward or outward. As the malar bone is usually broken at the points of synostosis with neighboring bones the orbital nasal bone superior maxilla and zygoma are often involved in the lesion to a certain extent but in incomplete fractures of one edge the malar bone may be affected alone. When the malar bone is located inward the separation occurs at the lines of bone sutures and in some cases the bone may be displaced as much as 4 to 6 cm without fracture.

Swelling and edema may disguise the deformity temporarily and as the displaced fragments remain fixed in the surrounding soft tissue mobility and crepitation are absent. In a present however a palpation of the swollen cheek reveals extreme tenderness. Irrigability of the bony arch may be palpated. One helpful sign is post-traumatic trismus. This is always found immediately after fracture of

the zygoma but is usually delayed after fracture of the malar bone as a fact the author explains by assuming that in zygoma lesions the insertion of the masseter is involved primarily while in malar lesions the inflammatory reaction invades the masseter gradually.

After a period of a few days fractures of the malar bone and the zygoma are not amenable to reduction. Treatment must be given early because usually the displaced imbricated bone rapidly heals in place and cannot be dislodged. In one case however replacement was effected as late as twelve days after the fracture.

In fracture with displacement outward reduction can be effected easily by simple pressure. When the fragment is depressed the author lifts it forward into position by means of a special forceps with sharp toothed ends. Local anesthesia is sufficient.

KELLOGG SPEED M D

Jean and Solcard Fractures of the Pisiform Bone (Études du pisiforme) Rev d o thop 1923 xv 477

Injuries of the pisiform bone are rare only about a dozen cases of dislocation of this bone have been reported in the literature and few cases of fracture are known.

The case reported by the authors was that of a man who fell backward striking the ground with his left wrist in extension and adduction. An anteroposterior roentgenogram made the following day showed a pisiform fracture. The fracture line was in the form of a Y the lower inner fragment being the smaller. In a lateral roentgenogram the lower outer fragment appeared posterior and was found to comprise the greater part of the articular surface. The upper inner branch of the fracture line showed a gap.

W A BRENNAN

Clairmont P and Schin H R Conservative Treatment of Dislocation of the Semilunar Bone (Zerknsektion der Behndlung der Mondbeinverletzung) Ztschr f Ch 9 3 1 386

After a brief discussion of the various types of dislocation of the semilunar bone which is illustrated with roentgenograms the authors urge conservative treatment.

An early diagnosis is easily made with the aid of the roentgen ray and is of great importance. In old cases reduction is exceedingly difficult. The dislocation of the semilunar bone is often complicated by fracture of the navicular bone with or without dislocation of the proximal navicular fragment and with avulsion of the styloid process.

The best treatment is reduction under anesthesia. This is accomplished by maximum dorsal flexion pressure upon the dislocated semilunar bone from the volar surface and associated maximum volar flexion.

After the reduction immobilization is necessary for only a short time. Physiotherapy should be begun early.

HARMS (Z)



2 It gives a fixed point during operation  
 3 It indicates the amount of extension of the leg necessary to correct the shortening and sometimes the degree of abduction required

4 The scale on the crossbar gives the length of the screw and facilitates corrections

5 X-ray control during the operation is rendered unnecessary

6 The screw may be placed with precision

7 The apparatus is simple to construct and to use and does not impede the operation

8 It gives good localization in all cases

Errors occur most often in the cases of obese subjects because of difficulty in finding the landmarks

The instrument may be fixed to the iliac and pubic spines by silk sutures placed under local anesthesia. A marker held by adhesive tend to descend and localizes the head too low. When the abdomen hangs over the groin the apparatus is useless. A pathological pelvis may cause error.

Of fifty roentgenograms of normal or fractured hips taken indiscriminately the crossbar was at the center of the head in forty-five. When the apparatus was applied to the cadaver and a needle forced to

a point corresponding to the crossbar the needle struck within 1 or 2 cm. of the center of the head in every case. The author and Jentzer have used the method successfully in three operative cases. The operations were extremely simple and rapidly conducted under spinal anesthesia the postoperative course was normal and the results were encouraging.

WALTER C BURKET M.D.

Baudet R. and Masmontell F. Osteosynthesis of Diaphyseal Fractures of the Leg (*Ostéosynthèse des fractures diaphysaires de jambe*). *J de chir* 923 xxii 39

This is a detailed report of the authors' technique in reducing fractures of the shaft of the tibia by operation. During the operation constant traction is maintained upon the lower fragment by means of a mechanical apparatus attached to the operating table. Sherman plates are used to immobilize transverse fractures and Parham bands for oblique fractures. The article includes several sketches of the instruments employed and roentgenograms of fractured bones before and after reduction.

LOYAL E. DAVIS M.D.



# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD VESSELS

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f o r e a n d l e a t e r a n d t h e v a r i o u s e n t h o f  
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3 A c c o r d t o t h e v a t a t o f s w i w  
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e F a l l a f t e r t o r t h e m s e l m  
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4 A f t e r e c u s a b o u t m a n i t u t u t a s e p e r  
c e t f a l a e u a l e a n o c o n r t l y  
h o a l t a b g e n e r a l e l o r y t e t a

5 E a c t i n e m e g n e e r a t a b e t f b e  
p e r m e d l n e l w h e t h e r i s t l  
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6 I f t h e r e i s a c c e s t e s t l h m t t l  
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t e v e r f w i t h o l e s b e t t e r f u l a t e o f f l  
i n t h p e r i p h e r y l a s t f i t h e c e n t r o n n n

7 A b l e p e r f o r m l a c c o r d i n g t h n t h o u t l  
t h e v l

8 I n l a s t o f t h e m a i n t e n t c a r e t t e l e  
t a k n t o d a m n e t h e c l a t e r a l

9 T h e l h g e n t t e c h n i q u e w i t h l g u n f t h e  
a f f e r t a n e f f e n t a f f e r e s a n d e n t r y i n f t h e  
c e l t h e a n e s a l l u t a n d i s a t t u l t n  
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l j c M t s o e r a t i o n

B a r r a d i: M u l t i p l e D i l a t a n t A n u s T h r o m b o s e s  
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l a y s l t e r t h r o n l t l u n f t h l a r a l a l  
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34

I t a t h l w e a n l n a n d i r e t  
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f e m a t a v l t p m t f e l a n o t e  
m e s e t e s n e c l i n e a n s g a s s a s  
n t h t t l t m e r e a e t g e l l e t e r l  
p o u l c e n t o n f t l a t e r t e  
i n l t t t t e m a c l e s t h p e r m a l  
t a t p h i l t a h a d m a c e m a l a s  
l y p h l f r a s e t a r r u C a n e a g  
e a v e t l p e r e a r a r e

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a k l l l t h t t t m a n d j l e  
l t n t n e l n e l a f t h v m i t u s  
b e r e l a h t e d l l l l a e h g l s t h a  
f l w l l t t t n w h i c h t e t t l c o n  
p l t u l l n g l o c k l o o d t u s n l  
l n j t i n r t h n o t m y t t t d n o t

T h t g f o l t r u t f t h e s t n l l o o d  
s p l l p r e s o n g g n g n s r t a n l

I t p e r m e n t r i t e r y s m s t n o l y  
i n l d g l l l b e t a t l l g (2) i t s  
n o u t h i s n e a r t h l m i n a l r t a n d (3) t r u n s

nearly parallel with the abdominal aorta. The anastomoses with the mesenteric vessels are very small and not adequate.

Operation should be performed as soon as possible as the condition is serious as soon as symptoms are present.

The mortality has been high because usually the treatment has not been given early. Resection of the gangrenous intestine and anastomosis are indicated only if the patient's condition is very poor, the two ends of the intestine may be brought out of the abdomen temporarily.

The author reports three cases.

MARCLIS H. HOBART, M.D.

Sencert, L. Arterial Embolism of the Limbs and its Surgical Treatment (Les embolies artérielles des membres et leur traitement chirurgical). *R. d. Ch. Par.* 93, 1, 623.

The usual point of origin of arterial emboli is the left heart and the usual cause of such clots is an organic lesion of the mitral valve. Other causes are acute and subacute myocarditis and surgical operation.

Arterial emboli have a predilection for the points of bifurcation of the arterial trunk. Secondary thromboses may render the surgical localization of the emboli difficult, but in Sencert's opinion these thromboses are formed late.

Ordinary diagnosis is not difficult. If obliteration of the vessel is sudden and complete, the symptoms appear with a suddenness and intensity which leave no doubt. If the occlusion is at first incomplete, there are disturbances of sensation and motility which sometimes are difficult to interpret and may be confused with those due to acute or chronic arteritis.

The localization of an embolus is done best by exploring the peripheral pulse. If on exploration of the limb from below upward the pulse is first found absent and then suddenly appears at a certain point in the trajectory of the artery the latter point is the site of the embolus.

The only method of treating arterial embolism of the limbs is arteriotomy and extraction of the clot. Absolute asepsis and accurate technique are essential because an infection too slight to provoke the least clinical manifestation may set up a thrombosis in a sutured vessel. Before opening the vessel Sencert irrigates the region with a 1 per cent citrate of soda solution and places compresses wet with the solution on each side of the artery. He believes it best to incise the vessel at the site of the embolus rather than just above or below it because if the intima is altered it can be seen and action can be taken accordingly. The clot is removed by introducing a curved forceps or a Nélaton sound through the arterial opening. The vessel must then be carefully explored and the exploration followed by citrate of soda lavage.

Since the first failures reported by Lejars in 1904 more than one fourth of the patients subjected to embolotomy have been cured. W. A. BRENNAN.

## BLOOD AND TRANSFUSION

Colebrook, L. and Storer, E. J. On Immuno-transfusion. *Lancet* 1933, cv, 1341-1394.

It has been demonstrated by Wright that simple transfusion is of little value in severe septicæmia because as a rule normal blood contains fewer protective substances than the blood of the infected patient. Wright therefore proposed the infusion of immunized blood. The purpose of immuno-transfusion is to furnish the body with a bactericidal plasma which contains in addition a large number of normal leucocytes capable of making an active immunizing response. The method is a last resource when all the surgeon can do has been done and when no response can be obtained by vaccines.

One of three tests may be employed to determine whether the patient should be treated by the inoculation of a vaccine or by immuno-transfusion. These are the vaccine response test, the estimation of the phagocytic power of the patient's blood and the chiasitic test of Wright. The authors describe the technique of each in detail. If the leucocytic efficiency of the patient's blood is reduced to one third that of normal blood the blood is incapable of making immunizing responses and immuno-transfusion is necessary.

The donor is chosen as for an ordinary transfusion and his blood then immunized. Wright has shown that the addition of vaccine to blood *in vitro* results in the elaboration of protective substances which are derived from the leucocyte and are non-specific in character. The authors at first immunized the donor's blood by the intravenous injection of vaccine but later found it more practical to make a subcutaneous inoculation of vaccine.

Within one to five hours the blood acquires a considerably increased hæmo-bactericidal power. This increased power exerts its effect non-specifically, arising with the dose of the vaccine and usually disappears after forty-eight hours. The authors use routinely a subcutaneous inoculation of 1,000 millions of a stock staphylococcus vaccine and draw off the blood after four or five hours.

The addition to the blood of calcifying agents such as sodium citrate to prevent coagulation have been found to impair the functions of the leucocytes. Therefore uniltered blood or defibrinated blood should be used. The latter has been found the more practical. Defibrinated blood has lost 25 to 30 per cent of its leucocytes but the loss makes little difference in its bactericidal power. For a short time after its collection defibrinated blood contains active fibrin ferment which rapidly clots fresh blood *in vitro* but there is no danger of intravascular clotting because the fibrin ferment is inactive on blood *in vivo*.

The blood for transfusion is drawn into a bottle which contains a fixed glass rod and is defibrinated by constantly rotating the bottle while it is filling and for from four to six minutes after the needle is withdrawn from the vein. Experiments have shown that



# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Lee W E The Surgical Treatment of Burns  
Tl p G 1923 3 xiv 845

From results of experimental work the author is convinced that burns should be given the same treatment as other types of traumatic wound. A comparison of the pathology of burns with the inflammatory reaction of the tissue to other types of injury will demonstrate that the local and general changes are identical. Variations are in degree only never in kind.

The treatment is general and local. Lee relieves the pain with large doses of morphin and covers the exposed raw endings with sterile oil. Harsh dressings are omitted altogether or impregnated with oil or wax. Dead tissue is removed as early as possible. During the period of shock, weak antiseptic oils are applied to the necrotic tissues. At the end of twenty-four hours all loose and detached tissues are removed with the scissors and the burned part is immersed for one hour every day in a 2 per cent aqueous solution of sodium bicarbonate. Impervious dressing which prevent external drainage are to be condemned. These include surgical lint upon which ointments are spread and the so-called wax shell of ambrin or its substitute.

Lee has grouped his cases of burns as follows: a local treatment is concerned into (1) noninfected (2) contaminated (3) infected and (4) suppurating. Noninfected burns include those of the first and second degrees in which the blisters are unbroken. In this type primary closure and the prevention of secondary infection are clearly indicated. The airtight occlusive dressing provided by a paraffin film may be regarded as primary closure. Cases of burns which can be treated within the first three hours after the injury and in which it is possible to remove the dead material with the mechanical means are classified contaminated. The primary closure of these burns with a paraffin film is attempted provided a microscopic examination of the exudate shows the absence of trophococci. Burns of the third degree are classified as infected from the twelfth to the twenty-fourth hour after the receipt of the injury and suppurating after seventy-two hours.

For chemical debridement daily immersion is given for a period of one hour in a 2 per cent solution of sodium bicarbonate at a temperature of 60 degrees F. The surface is then wiped with a towel to the first of the surface. When the true living layer of the extrinsic is denuded of skin undue radiation of body heat is guarded against by covering the patient with a

blanket tent made over the bed under which a constant temperature of 98 to 100 degrees F is maintained with electric lights.

The author concludes his article with the following summary:

1 As burns differ widely in degree character of tissue destruction bacterial content and progress of healing no one procedure nor any one solution will prove equally valuable for all cases and all stages.

2 The same factors infection and necrotic tissues are present in burns as in all traumatic wounds and therefore the principles found of practical value in the treatment of other traumatic wounds apply to their treatment.

3 The covering of wounds with impervious dressings such as wax films is to a certain extent comparable to the surgical closure of traumatic wound and should be governed by the time that has elapsed since the accident the type of infection the bacterial content of the wound and the presence of necrotic tissue.

4 The débridement of burn by surgical excision though theoretically ideal is usually a mechanical impossibility. Dakin's solution when it can be borne by the patient chemically removes the necrotic tissue of burns satisfactorily as in traumatic wounds but unfortunately only a small percentage of patients are able to endure the pain. In the majority of cases a satisfactory result is obtained from natural tissue autolysis assisted by mechanical cleansing and daily immersion in a 2 per cent solution of sodium bicarbonate.

5 Until the condition of surgical sterility is obtained the necessary drainage is provided by a single layer of wide mesh paraffin gauze the exposure of the part to the air and a dressing that will float off the wound with minimal trauma at the time of its removal.

6 If burned surfaces are exposed to the air it is usually necessary to employ a chemical antiseptic to obtain and maintain surgical sterility. The chlorine group of antiseptics have proved most satisfactory for this purpose. However the solution must be tested so that no irritating free chlorine or hydrochloric acid will be applied. Very weak strengths should be used at first as weak as 1/4 of 1 per cent. As the patient becomes accustomed to the antiseptic its strength may be gradually increased to 1/2 of 1 per cent.

7 The rate of growth of new skin and of grafted skin is at the maximum upon surfaces which have reached the condition of sterility in the shortest period of time.

8 The amount of scar tissue formed after burns and the consequent contractures are in direct proportion to the amount of tissue destroyed by the

original traumatizing agent and to the type degree and duration of the infection

The preparation of the paraffined fly netting used by the author as a dressing for burns is described in detail

EMIL C ROBITSNEK M D

**DeJaux** The Transplantation of Skin Grafts under the Action of a Current of Warm Air (Transplantation of greffes epidermiques sous l'action d'un courant d'air chaud) *Bull. et Mem. Soc. Ch. d. P.* 1934: 1: 109

Instead of cutting away the granulations the author directs a current of warm air upon the surface to be covered with a graft. In this way he obtains a dry surface and saves the granulations which are of value in keeping the grafts viable. After the Thiersch grafts are applied the warm air is played over them for several hours until the serum between their edges is dried. After they are dry they remain in place. A light dressing is then applied.

LOYAL E DAVIS M D

**Montague J F** A New Type of Mattress Particularly Adapted for Use in Cases of Rectal Incontinence *Surg. Gynec. & Obst.* 1934: 18: 17

In size and general appearance the mattress described resembles an ordinary single bed mattress. It may be used on any bed or spring. In the center of it is a recess to accommodate a receptacle for the excreta. This recess is filled by such a receptacle and one mattress section or by two mattress sections. When the two mattress sections are in place the mattress may be used as an ordinary mattress. When the receptacle is in use the recess and the mattress for about 1 ft around it are covered with rubber cloth. The patient is made comfortable on a rubber ring cushion or pneumatic horseshoe placed on the bed pan or douch pan. When it is desired to remove the pan the patient is turned on his side and



Fig. 1 The recess in the mattress with the receptacle in place



Fig. 2 The mattress complete after the receptacle has been removed. The sections have been replaced

the section is withdrawn. This mattress prevents the strain on the heart and on sutures which attends the use of the bed pan with the ordinary mattress.

EMIL C ROBITSNEK M D

## ANTISEPTIC SURGERY TREATMENT OF WOUNDS AND INFECTIONS

**Deflater** The Relation of Local Immunization to General Immunity. Mod. Trends in Tendencies to Explain Infection and Immunity by a Process of Local Reaction. Local Vaccination (D'immunité locale à l'immunité générale des maladies à pliquer l'infection et l'immunité par un processus d'action locale vaccinale) *Pres. Méd. Pr.* 1934: 4: 3

To date except for smallpox vaccination has been given uniformly by subcutaneous injection. Often the resulting local reaction offset to a large extent the immunizing value of the procedure and the immunity conferred was not as great as that obtained naturally from the disease itself. Against most infections vaccination is either inefficient or insufficient.

In this article the author reports the results of a series of experiments performed on guinea pigs and rabbits with regard to local immunity in the skin and local immunity in the intestinal tract. The investigation was based on the following hypotheses and observations:

- 1 Every disease has a special point of predilection, the site of entry of the virus.
- 2 Animal may be refractory to a disease of man but if the receptive organ is sensitized they become susceptible. This shows that their general immunity depended upon local obstruction to the entry of the virus.
- 3 Immunity is conferred by infection of the selected tissue and general immunity is obtained from local obstruction to the entrance of the disease.
- 4 The serological reaction (agglutination etc.) is independent of immunity in fact when one is found the other is usually absent.

In the first of the three series devoted to local immunity in the skin a carbuncle was taken as a representative condition. The following conclusions were drawn:

The skin is the only receptive organ. Intra-peritoneal or intravenous injections caused no harmful effects if the skin was not contaminated. If the animal was skinned and the virus injected at random there was no reaction but if the virus was applied to excoriated skin an immediate reaction followed and the animal died.

The skin is the only organ to produce immunity. Vaccination on contaminated skin of successive small amounts of attenuated virus conferred immunity to subsequent inoculations of the virus. Intra-peritoneal and intravenous injection did not confer immunity unless the disease was provoked in a sensitized spot in the skin (abrasion).

3 The general reaction does not produce immunity. In the production of immunity as noted there was no general reaction such as the production of agglutinins and the blood of the immunized guinea pig did not protect another guinea pig from infection.

The second series of experiments with regard to local immunity in the skin dealt with vaccinia. In these it was again proved that the skin is the only receptive organ and the only organ to confer immunity, also that the general reaction has no part in the production of immunity.

The third series of experiments with regard to local immunity in the skin dealt with staphylococcal and streptococcal infections. It was concluded that in these conditions the organs of predilection are least ectodermal. The results were not definite but cutaneous vaccination had a favorable effect.

In the experiments regarding local immunity in the intestinal wall dysentery, typhoid and cholera were studied as representative affections. Dysentery can be produced experimentally in animals without sensitizing the intestine but to produce typhoid and cholera previous sensitization of the mucosa is necessary. The sensitization was accomplished by feeding bile which destroyed the local protective action of the intestinal wall. It was found that the intestine is the only organ of entry and the only one to confer immunity, also that the immunity is independent of the general reaction. When the bacteria were injected intravenously or intraperitoneally the vast majority accumulated in the intestine and gall bladder. In the absence of intestinal lesions no immunity was conferred. As local immunity increased the general reaction (agglutinins) decreased, being no longer necessary but before local immunity developed agglutinins were present in abundance.

The mechanism of infection by mouth in man is described by the author as follows:

The bacilli pass through the unsensitized intestine and accumulate in the mesenteric nodes. When the mesenteric nodes break down a septæmia results and in this condition the bacilli are attracted to their site of positive tropism—the intestinal mucosa. The mucosa then having been sensitized by their previous passage becomes the site of ulceration. If recovery takes place local immunity is established and the intestinal mucosa remains refractory to further invasion.

Experimental evidence indicates that a similar local immunity occurs in the lungs.

With regard to the practical application of local vaccination the author states that the intestinal type vaccine given by mouth has been widely used. In this method a pill of bile is given in the morning and followed by a tablet of attenuated culture each evening in gelatin. This is repeated for three successive days. Definite immunity results in three or four days. As this is purely a local process diseases of other parts do not contraindicate the procedure.

Vaillant reports that in an epidemic of typhoid fever in 1922 the infection attacked 8 per cent of

unvaccinated persons and 2 per cent of persons vaccinated subcutaneously but only 0.17 per cent of persons vaccinated by the oral route. Fleche vaccinated 253 pupils by the subcutaneous method and 269 by the oral method. Ten of the first group developed typhoid fever in a period of twenty days but only five of the second group, the last on the eleventh day. Other reports confirming the value of local vaccination are cited.

In conclusion Delater points out that as certain organs are the sites of invasion and the production of immunity it appears logical to localize vaccination to these organs. This method is not only more efficient but also easier and more agreeable than others.

I. M. HAY, M.D.

WILKIE D. P. D. Page C. M. Saner F. D. Mullally G. T. and Others. Discussion on the Treatment of Acute Primary Infections of the Hand. *B. M. J.* 9, 3, 1925.

WILKIE states that an incision should never be made at the point of acute lymphatic infection during the early stage. He induces hyperemia locally by means of moist hot applications and the application of Bier's elastic bandage to the upper arm gives fluid in large quantities by mouth or rectum and injects subcutaneously 50 c.c. of polyvalent anti-streptococcus serum. In suppurative cellulitis early incision with free drainage is always indicated. Wilkie makes two lateral incisions in the finger pulp. In cases of deep suppurative in the palm an incision should be made between the two fingers and a sinus forceps should be thrust in along a lumbrical canal. If this does not give adequate drainage the web of the finger may be split up into the palm. In cases of suppurative in the thenar spaces through and through drainage of the first interosseous space is essential. Incisions on the dorsum of the hand are rarely seldom necessary.

For the treatment of severe cases of nail fold infection Wilkie advocates the throwing up of the nail fold by a lateral incision at either side and removal of part of the nail. Strands of gauze should be packed between the nail and the fold. In infective tenosynovitis an incision should be made for free drainage as early as possible. A general anesthetic should be administered. In some cases it may be necessary even to split the anterior carpal ligament in order to prevent retention above it by adhesions. If he supuration has extended into the forearm a lateral incision should be made on either side just in front of the bones and a forceps thrust through to give free exit to pus burrowing upward under the anterior group of forearm muscles. Wilkie does not approve of the use of drainage tubes in these cases. In the after-treatment moist dressings and hot saline baths are indicated but should be stopped as soon as the acute inflammation has subsided. In cases of cellulitis rest should be given until the infection shows signs of becoming localized. Thereafter the sooner movement is encouraged the better. Stiff fingers are in the way and should be amputated but this should



which having been identified a pair of artery forceps is directed around it to the palmar aspect of the muscle. This is not pushed in beyond the middle metacarpal bone for fear of infecting the middle palmar space. The thenar space is then opened and drained in the usual way.

ROBERTS believes that a general anæsthetic and a tourniquet should be used in every case. An incision made close to the nail and continued down the sides of the finger to within a short distance of the lower end of the phalanx provides perfect drainage by raising an anterior flap and prevents damage to the nerve plexus in the pulp of the finger. Roberts prefers a dressing of paraffin and flavine. He objects to the use of fomentations for longer than forty-eight hours. If the case is not seen until after that length of time he does not amputate the necrosed phalanx at once as often it will recover with the loss of a superficial sequestrum only. He believes that in cases of streptococcal lymphangitis no incision should be made at first but moist heat and hot continuous baths should be tried. When the entire arm is swollen he recommends the old-fashioned poultice applied from the shoulder to the wrist. On the actual lesion on the finger or hand a boric fomentation may be applied. He recommends the flexed position of the hand in infections of the palmar surface but states that when the dorsal tendons are involved the extended position is best. He protests against the long median incision in infections of the tendon sheaths as this leads to prolapse of the tendon and a stiff finger. Lateral incisions not passing over the joints give adequate drainage and are less often followed by permanent stiffness. Early movement is of great importance. EMIL C. ROBERTS, M.D.

## ANÆSTHESIA

Luckhardt A. B. and Lewis D. Ethylene Oxygen Anæsthesia. *J. A. M. A.* 923 LXXXI 1851

In 800 cases of various types in which ethylene was tried it was found superior to other anæsthetics in present use. It is given with oxygen in the proportion of about 10 to 1. Its advantages are summarized as follows:

1. The induction of anæsthesia is rapid, quiet and not unpleasant.
2. During the period of anæsthesia there is good relaxation without cyanosis.
3. It is very seldom necessary to resort to ether because of muscular rigidity.
4. There is no sweating or respiratory irritation, a circumstance decreasing the chance of postoperative pulmonary complications.
5. Recovery usually occurs within two minutes, the patient in that time becoming mentally alert.
6. Vomiting is less frequent and less severe than after ether anæsthesia.
7. As ethylene has a less toxic action on the neuro-musculature of the bowel it is less apt to cause gas pains than ether.

The minor disadvantages of ethylene are its unpleasant odor and the fact that it is responsible perhaps for increased swelling from the wound. Its chief defect is its high explosibility which prohibits its use near a cauterizing flame or the source of electrical discharges. However in view of its advantages the authors believe it has a very definite place as a general anæsthetic and is worthy of serious consideration and a thorough trial.

GEORGE P. McALLIFF, M.D.



# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Faill, C. and Oulmby F. H.: The Economics of Dosimetry in Radiotherapy. *Am. J. Roent.* 1923 944

The authors report experimental data which will enable the roentgenologist to determine the relative amount of radiation at any tissue depth and to administer it in the most economical way. The object of the experiments was to obtain distribution charts for different target skin distances, filters and diaphragms by means of ionization measurements. The equipment and technique used and the precautions taken in making the measurements are discussed at length. The data obtained led to the following generalizations:

1. The effect of the size of the field on the radiation is effective at any particular tissue depth is the same for all filters and all distances used in practice.

2. The effect of the filter on radiation at any particular tissue depth is the same for all skin areas and all distances used in practice.

3. If all the dose factors except the target skin distance are the same, the relative depth doses depend only on the inverse square law.

4. For purposes of skin dosages in roentgenotherapy, the inverse square law is applicable provided the same beam of radiation is employed at the different distances considered.

An empirical equation was developed for the calculation of the amount of radiation effective at any tissue depth (including the surface) under different conditions of treatment.

Tables and charts of the factors involved are given for a voltage of 200 kv. (crest value) and a typical American machine.

From the data available in the literature it is shown that these factors can be used by roentgenologists using machines of this type with an introduction of a large error in the calculations.

Efficiency charts for a number of conditions of treatment are given. They enable the roentgenologist to determine the most economical filter and target skin distances for any particular treatment.

The charts may be employed for the purpose of such as the determination of the percentage depth dose, the number of ports of irradiation to obtain the desired depth dose, etc.

Examples are worked out to illustrate the use of the equations and the charts.

The limits of applicability of the generalization of the equation and the chart are clearly set forth. The data given extend only slightly beyond the ranges used in the experiments so that no large errors are introduced by the extra polarizations. In the authors' opinion no error greater than 5 per cent

plus or minus will result from the judicious use of their data by American roentgenologists.

The results are independent of milliamperemeters. *Am. J. Roent.* 1923 944

Desautels F.: The Law of the Action of the X Rays and the Gamma Rays of Radium upon Living Cells. *J. R. Soc.* 1923 411

The nature of the energy produced by the roentgen rays, well known as are also the physical changes which such energy produces, but the manner in which the one affects the other is still a matter of uncertainty. On the other hand, considerable is known regarding the transformation which occurs during the absorption of roentgen rays in gases. The absorbed rays liberate electrons in the kinetic energy, which has the energy of the roentgen rays is multiplied by the ionization of the gas occurs and eventually the rays combine.

Experimentally it has not been possible to prove that the direct action of roentgen rays in tissue occurs in a similar manner. But the experiments suggest that the effect of the roentgen rays is due to the formation of electrons. To late results do not prove that the process of roentgen ray transformation occurs through the electrolytic changes in the medium of free electrons and stable ionization.

A possible explanation is suggested by the author which is supported by a number of observations. It is shown that the fact that the formation of recombinant ions in the absorption of roentgen rays must be combined with kinetic effects. The impulse which has the chemical nucleus is derivable both for the molecules of the bombarded and for those struck directly. These impulses are the sum total of which has a large amount of kinetic energy in a very small space may be regarded as a considerable amount of temperature in the very small space which has a high temperature. The total heat produced is a preliminary calculation is calculated but the heat is regarded as distributed over all the molecules of the heated space. The heat effect at every point in the confined space of the molecules and groups of molecules. The temperature at the point of ignition is very high rise of temperature that suddenly into a molecule and into the adjacent cells. Since the undifferentiated cells undergoing mitosis are damaged when point heat is developed in their nuclei. Growth processes are arrested in the heat and cold.

One of two assumptions of especial importance for the authors' theory is that point heat effect is

limited to points at which the electron loses a part of its kinetic energy by impact. If at these points there are sensitive cells in critical states which can not endure the temperature impacts upon a part of their molecules these cells will suffer. Cells with a higher resistance such as muscle cells will be able to resist. Therefore the sensitiveness is a purely biological quality.

The other assumption of especial importance in the author's theory is that the particles struck will be distributed very irregularly throughout the irradiated zone according to the laws of probability. If cells of one type that ought to be influenced (carcinoma cells for instance) are distributed evenly in the irradiated zone it appears probable that during sustained radiation the number of carcinoma cells affected will increase. Very soon many of them will be struck for the second or third or greater number of times whereas others will not have received the first impact. The number of carcinoma cells not struck once will decrease as the radiation proceeds but the rate of decrease becomes slower and slower whereas the number of cells struck a number of times will increase. Necessarily after prolonged radiation when the average effect has been obtained most of the carcinoma cells will have been struck several times and others a hundred or a thousand times yet a few cells must remain which have not been struck once.

This point heat theory that after sufficient irradiation of practically similar cells of nearly equal sensitiveness the majority have been destroyed and many others severely damaged while others have not been influenced is proved by experience. With prolonged over dosage the number of unaffected cells is reduced but they do not disappear altogether and careful experiments have frequently shown this very surprising fact.

The author attempts to explain the action of rays of different hardness in the light of this point heat theory. A new explanation offered for the so-called stimulation effect of radiation is based on the injury of a correspondingly small number of cells to which the body reacts by compensating or overcompensating. Dessauer advances his theory without calculations and experimental examination but hopes that its publication will stimulate attempts to disprove it or to establish it as a working hypothesis.

ADOLPH HARTUNG, M.D.

Seitz, L. Do the Roentgen Rays Have a Local or General Action? (L. K. L. D. H. G. M. N. W. K. G. der Ro. tge. t. hl. ?) St. hl. ther. p. 93. 436

The influence of the gamma rays of radium and the roentgen rays on malignant cells is exerted first by the action of the ray on the cells themselves and second in their cells by way of connective tissue cells and body fluids or through the gland system of internal secretion. Both influence will always be present but for the progress of science it is of great importance to know which of the two predominates.

In every case treated a choice must be made between two forms of dosage for a definite variety of cells: (1) the dose which stimulates function which is obtained with smaller quantities of the rays and (2) the dose which checks function which is obtained by larger quantities of the rays. This conception is based on isolated living cells of the animal body, ova, spermatozoa, etc. The changes in the carcinoma cell which always appear before any others indicate that the direct influence of the roentgen rays is of chief importance in the destruction of the cells.

It is therefore necessary to determine the dose which causes direct injury to the nucleus and the cell. Experience shows that for carcinoma of the uterus this is from 90 to 110 per cent of the skin erythema dose. For other carcinomata the dose must be determined on the basis of experience but in the meantime the dose determined by Seitz and Wintz for carcinoma of the uterus may be used.

GREIL (G)

Little, C. C. and Bagg, H. J. The Occurrence of the Inheritable Types of Abnormality Among the Descendants of X-Rayed Mice. *Am. J. R.* 1923, 1, 923 x 975.

The authors review the work done by other investigators in an attempt to modify the germ plasma with the roentgen rays. They themselves irradiated adult mice to determine the effects of such treatment on their descendants. Mice were chosen as the experimental animal because their hereditary behavior is known and has been carefully recorded. The history of the stock of mice used as well as that of the individual mouse is given. The fact that no such abnormalities as those observed appeared in the stock either before treatment with the roentgen rays or in the 2000 control animals from the same stock constitutes strong evidence that the roentgen rays were the agent that brought about the changes causing the abnormalities. These abnormalities are described in detail and illustrated.

The results of the experiments and the conclusions drawn from them are summarized as follows:

1. Abnormalities of the eyes and feet first appeared among the second and third generation descendants of mice which as adults were given one-fifth of a human erythema dose of roentgen rays on each of five successive days.

2. The first young were obtained from treated animals as late as ten weeks after the treatment. Therefore the absence of intra-uterine effects was assured.

3. The eye abnormality is inherited as a mendelian recessive character.

4. The foot abnormality is also inherited but as yet the exact nature of its inheritance has not been worked out.

5. The fact of the appearance of these abnormalities as the clear lesions involve in their somatic expression their absence from the control animals and the work of other investigators who have used the physical agents lead to the belief that the roent-

gen ray treatment has a causative effect upon their production

6 This effect appears to be of the nature of a direct effect on the germ cells themselves

The experiment here recorded indicates the necessity for extreme caution in the use of the radium or roentgen ray in the treatment of persons who may become parents after they have been treated.

ADOLF HARTUNG M D

Hickey P M and Warthin A S Roentgenological Pathological Conferences J R d 1933 4 6

The purpose of this article is to promote cooperation between the roentgenologist and pathologist. The conclusions drawn by the roentgenologist confronted with the varied problems presented in a general diagnostic roentgen ray laboratory are of great or little value depending upon whether or not they are based upon proper concepts of pathology.

At the University of Michigan there is held every Friday afternoon during the school year a pathological conference in which the clinicians and roentgenologists give their clinical diagnoses; the pathologist gives the macroscopic and microscopic findings and the correlation between the clinical symptoms as shown by the method of physical examination and by the roentgen ray is reviewed and commented upon in the light of autopsy data. The advantages of such a weekly conference are first that it stimulates careful and precise work and second that it provides the opportunity to clarify the details of complex cases or to profit by mistakes.

The authors give in detail the histories of six cases to illustrate the method and to emphasize the practical value of such cooperation between the clinician and the pathologist at laboratory. In conclusion they state their belief that such correlation studies of roentgen ray plates and autopsy data are essential to the scientific advancement of roentgenological interpretation.

ADOLF HARTUNG M D

Warren S L and Whipple G H Roentgen-Ray Intoxication I Bacterial Invasion of the Blood Stream as Influenced by X-Ray Destruction of the Mucosal Epithelium of the Small Intestine II The Cumulative Effect of Summation of X-Ray Exposures Given at Varying Intervals III The Path of a Beam of Hard Rays in the Living Organism IV Intestinal Lesions and Acute Intoxication Produced by Radiation in a Variety of Animals J Exper Med 9 3 1933 3 1 41

The experiments reported were carried out with films to which 0.1% of a 5 mm aluminum filter and a focal skin distance of 1 cm. It required about 1000 mμ to administer the maximum sublethal dose to a dog by irradiation over the abdomen. The kinetic phenomena was about 1000 mμ.

Such a dose produced a normal animal with cause death on the fourth day. The intestine was on resembled the clinical picture of an intestinal obstruction. At necropsy the pathological changes of

the small intestine was found completely destroyed. Ad small was taken of this specific action upon the intestinal epithelium to study bacterial invasion of the blood stream and some of the physiological properties of the rays.

Although empty crypt and naked villi were exposed to swarms of bacteria there was a striking lack of invasion of the blood lymph and tissues. During the fourth day there was evidence of infection and dissemination but not more than in severe intoxications without intestinal desquamation which lead to coma and death. The conclusion reached was that the intestinal epithelium is not the all important barrier protecting the tissues from infection by intestinal bacteria.

A maximum sublethal dose caused the same amount of mucosal destruction and clinical intoxication whether it was given in a single large dose or in smaller repeated doses administered with a six day period. Fractional doses given at six-day or longer intervals showed no evidence of summation but rather a suggestion of tolerance.

By controlling the portals of entry of these hard rays by means of impervious screens, it was found that the rays causing the destruction of the intestinal epithelium traveled in straight lines through the living tissue. The character of a deep ulcer could be accurately predicted on the basis of a knowledge of the size and form of the beam of rays and the appearance of the skin beneath. The normal mucosa did not occupy more than 0.3 mm. This would indicate that reflection or reflection is negligible and that for therapeutic purposes second radiation is beyond the direct pathway may be considered.

Practically all the same clinical and pathological picture was produced in other common laboratory animals. The rat and guinea pig were highly more sensitive to the X-rays than the dog and rabbit. Birds, fish, and reptiles were more resistant to radiation than the other doses of radiation which was lethal for dogs.

CHARLES H. HICK M D

Selmann H Investigation on the Effect of the X-Rays upon the Metabolism of Calcium Chloride and Its Relationship to the Treatment of X-Ray Intoxication (U. F. S. H. C. N. U. R. d. F. N. S. d. R. o. e. t. g. n. a. t. i. o. n. a. u. f. d. K. o. d. s. a. l. z. e. S. w. e. i. c. h. e. l. d. e. F. e. h. u. g. z. u. T. h. e. r. a. p. i. e. R. o. e. t. k. a. t. e. r. S. i. b. i. t. h. e. r. a. p. i. e. 913 1 453)

The X-rays produce a disturbance in the metabolism of salt in the organism as much as an increased elimination of salt and of urine occurs. In animal experiments the sodium chloride content of the skin and the blood is diminished abruptly after irradiation. The intoxication from X-rays could be controlled in almost every case by the administration of sodium chloride.

For this purpose the author uses 10 gm of powdered sodium chloride with menthol when anate in gelatin capsules. Three capsules are given

before and three immediately after the irradiation. In severe cases of intoxication from the X rays 10 ccm of a 10 per cent sterile solution of sodium chloride may be injected intravenously.

The experiments will probably result in added therapeutic effectiveness of the X rays in diseases in which the elimination of sodium chloride is deficient.

TÖBLER (7)

#### Desjardins A U Protection Against Radiation *Radiol gy 1923 1 21*

The potential danger from roentgen rays arises according to whether they are employed for diagnosis (roentgenography and roentgenoscopy) or for treatment (roentgen therapy). This is due not to any essential difference in the nature of the rays themselves but to differences in the conditions under which they are used.

When the roentgen rays are employed for diagnosis they must be relatively soft such as those generated at transformer voltages of from 40 000 to 60 000 volts. The rays produced at such voltages are in large measure absorbed in the superficial tissues and a relatively short exposure will produce irritation or more serious effects in the skin. The latitude of permissible exposure at a given voltage varies with the amount of current (milliamperes) and with the distance between the tube focal spot and the skin.

In roentgenoscopy the same range of voltage is used with a much smaller amount of current (3 to 7 ma). The allowable range of exposure is therefore much greater than in roentgenography in which the current employed varies from 20 to 100 ma. In roentgenography the only possible danger to the patient aside from electrical shock is overexposure. This is usually the result of making too many plates of the same part in a given period of time and seldom occurs when the examinations are made by experienced roentgenologists. The preparation and constant use of a minimal exposure chart giving the number of plates which may be made at a given time under given conditions is a valuable precaution. In roentgenoscopy the roentgenologist must try in himself to keep the total exposure time within safe limits taking into consideration the exposure time necessary in case serial roentgenograms are to be made of the same region.

In roentgenotherapy radiodermatitis is not so commonly accidental. In the resistant types of malignancy it is often necessary to give the maximal dose permissible and since the skin varies so much in sensitivity there is more or less marked reaction in certain cases. It is more to explain this to the patient before treatment. The use of Dosis lotion will often prevent radodermatitis.

Severe radiodermatitis involving the entire cutaneous layer and occasionally the subcutaneous layer is usually the result of gross technical blunders. Close supervision of all details of the treatment should entirely prevent the occurrence of such unfortunate sequelae.

The state of the blood in a given case should be known by the radiologist and should be given due consideration in the decision as to the detail of treatment. The systemic reaction which commonly follows treatment with the more penetrating roentgen rays may sometimes assume serious proportions. Clinical judgment based on experience and careful observation of the patient must determine the intensity of treatment permissible in the individual case.

The danger to the roentgenographer in exposure to the X rays lies in the possible effect on the cellular elements of the blood and the genital glands. In roentgenoscopy repeated exposure to small doses may cause cutaneous lesions. Because of this danger an apron of tested lead rubber and long lead rubber gloves should be worn. To diminish the exposure of the skin of the face the fluorescent screen itself should be covered by lead glass. Blood changes often attributed to X ray may be due to the poor ventilation so common in rooms used for radiology or to the confined sedentary life led by many radiologists. In roentgenotherapy especially since the advent of so called high voltage X ray treatment the question of protection has been in rather sharp focus. Little is definitely known as to what constitutes adequate protection. In this connection the author reports a series of experiments conducted in his laboratory to determine the thickness of lead protection necessary at various voltages as well as under certain conditions of scattered radiation. The results indicate that lead 1/8 in thick forming a side booth affords a high degree of protection against rays of 135 kv (peak). Ventilation of rooms used for roentgen therapy is of the utmost importance for the patient as well as the personnel of the treatment room. There is no question that the gases given off by the generating apparatus and through conduits along the conductors have some bearing on the incidence and severity of radiation sickness.

In the use of radium the potential and actual danger is greater because of the greater penetration of a portion of its rays and because the form in which it is available brings it into closer relationship to the persons concerned in its administration. Local cutaneous changes begin usually in the fingers with gradual loss of sensory acuity followed by drying and cracking of the skin and nails. Sterility and blood changes may be later results. The persons giving the treatment should be thoroughly instructed with regard to the possible dangers. All capsules containing radium should be manipulated with long forceps and all procedures studied to provide maximum protection. The cultivation of an outdoor hobby is of special importance to persons exposed to radiation.

F A FORD M D

P is Leusden Roentgen Ray Ulcers Especially  
Thir Surgical Treatment (U be Roentgen  
Shu e b s l s h e h u g h e B h n d l g)  
M d A l 19 3 1 8 t

The author reports a series of cases of severe X ray burns and late injuries and suggests that there may

be a certain hypersensitiveness to the roentgen ray as there is to other types of rays

The ulcer should be excised by an incision made around it in healthy tissue and the area then covered with a flap. In the stage of granulation the defect should be covered according to the Thiersch technique. So-called X ray indurations which may ulcerate should be excised before they break down.

Emphasis is placed upon the fact that those who use the roentgen rays should have thorough training and should be sure that irradiation is indicated. Old recognized procedures should be abandoned only when roentgen therapy will certainly give better results or the patient demands X ray treatment.

GRASHEY (Z)

#### Bumm Roentgen Carcinoma in the Female

(Urb. Roentgen. nom. b. der. Fra.) Zf. h. f. G. b. i. h. u. Gyna. k. 1923. lxxvi. 445

Among 100 cases of canceroid developing on the basis of a roentgen ray dermatitis which were collected by Lizarus there were only four in which the condition followed therapeutic exposure to the rays.

Bumm reports the case of a 61 year old woman who after having been treated for pruritis vulvae over a period of eight years by the usual methods was given roentgen treatments lasting from ten to twelve minutes every two or three weeks for a year and three months and on four occasions radium treatment. Two years later a roentgen burn was discovered. One year later she was admitted to Bumm's clinic.

The region surrounding the external genitalia had been transformed into a red ulcerating surface with areas of necrosis. In the right groin was an ulcer the size of a silver dollar which microscopic examination showed to be a diffuse scirrhous squamous cell epithelioma. The diseased skin area and the right inguinal glands were excised. During the following nine months there were two recurrences. These were excised. Three months after the last operation an inoperable recurrence developed in the left inguinal glands.

The conclusions drawn from this case are that great caution is necessary in the application of the roentgen rays to the external genitalia and that if burning of the skin occurs excision of the injured part must not be delayed too long. After from three to six months as soon as the roentgen necrosis is well demarcated from the deep structures the injured skin may be excised without danger of the formation of further areas of necrosis. The excision must be carried well into healthy tissue. The defect may be covered with skin from adjacent parts.

A question still to be answered is whether exposure of the mucous membranes of the genitalia to the roentgen rays may set up a condition of chronic irritation favoring cancerous degeneration. Sippe has reported one case which appears to answer

this question in the affirmative and the author reports six others. The author's patients were women between 48 and 57 years of age who received roentgen treatment for myoma or hemorrhage at the menopause. One to four years later carcinoma of the uterus appeared. There are three possibilities to explain this sequence: (1) chance coincidence of myoma and carcinoma; (2) unrecognized carcinoma of the body of the uterus present in an early stage before exposure to the rays; (3) the establishment of a chronic irritation in the mucous membrane and musculature by the roentgen treatment. The marked infiltration of cells which was observed in almost all of the cases suggests the last mentioned as the most probable cause.

The author has learned also of a case in which a sarcoma of the ovary developed following roentgen treatment.

In the discussion of this paper Mackenrodt reported two similar cases of patients who were exposed to the roentgen rays for myoma and between nine months and one year later returned with carcinoma. He holds the treatment responsible for the malignant degeneration.

Broeke reported a case in which a myoma retrogressed following radium and roentgen treatment but the patient died two years later of carcinoma of the right ovary.

Strassmann pointed out that it is not infrequent for a carcinoma to develop on the basis of an old print that about 20 per cent of uterine myomata contain the anlage of sarcoma that even operation for myoma does not ensure against carcinoma and that the incidence of carcinoma of the stump following amputation is as high as 5 per cent.

Meyer called attention to the fact that in the case reported by Bumm carcinoma developed only in the region of the typical roentgen ulcer particularly on the margin of the rest of the vulva and the surrounding structures remaining free.

BRUENNER (G)

#### Frick R. E. Possibilities of Deep X Ray Therapy

The J. G. 1943. 1

The X rays of short wave length have a marked lethal effect on malignant cells and cause a proliferation of connective tissue. This effect is partially offset by atrophy of the skin and bone necrosis of muscle and destruction of lung substance consequent upon repeated irradiations.

The author compares radium to a rifle of small bore used with a high explosive. This is useful for penetration. The X ray has the compensatingly of the less potent shotgun which riddles the target and spends itself in superficial destruction.

Lack of accurate or practical instruments to measure dosage and variations in the output of the apparatus are the factors limiting deep X ray therapy. However, when large amounts of radium are not available or large areas are to be treated it offers great promise of benefit.

CHARLES H. HENCKS, M.D.

# RADIUM

Simpson F E. Recent Developments in Radium Therapy *Ill os W J* 923 11 327

One of the most important recent developments in radium therapy consists in the use of radium emanation instead of the radium itself. Radium emanation is a gas extracted from radium solution. When this is confined in a tube it can be used in the same way as radium due allowance being made for its decay.

The chief advantages of emanation over radium are summarized as follows:

- 1 The danger of losing the radium is obviated
- 2 A very large dose may be concentrated in a very small space
- 3 Minute glass spicules containing the emanation may be buried in the tissue

The advantages of the tiny glass spicules or ampoules have proved so great that the treatment of certain tumors has been revolutionized. Traumatism is minimized, the soft beta rays rendered available are effective in the cancer tissue, and the dosage is exact.

The two principal methods of radium therapy are the burying of emanation and the use of very large quantities of radium at a distance from the tumor—the so called distance method. The experiment made by Bagge demonstrated that when the intratumoral method is employed from 10 to 100 mc of emanation in each ampoule is sufficient. The best results from distance radiation require at least 1000 mgm of radium or 1000 mc of emanation.

Too small quantities of radium, insufficient equipment and incorrect technique are responsible for some of the present unpopularity of radium therapy. It has been difficult to convince physicians that large deep tumors may be destroyed with radium, but it is easy to demonstrate this if the quantity of radium is sufficient and the distance from the radium to the tumor is increased. When these two conditions obtain any portion of the body may be irradiated with sufficient dosage to destroy tumor tissue. The author believes that the use of 1000 mc or more in selected cases of carcinoma of the cervix is attended with far better results than the use of 50 or 100 mc for a longer time. As radium rays are approximately four times as penetrating as the hardest X rays, more intense deep effects can be obtained with radium than with the X rays. Tests of penetrability which metal have shown that radium rays are about thirty times as penetrating as the X rays.

Because of the injurious effect of radium rays on the blood as a whole a special apparatus has been designed in which the radium is surrounded with a metal screen so that the radiation is given in only the area desired. This apparatus is suspended above the bed and adjusted.

In conclusion Simpson states that radium seems to be encroaching upon the surgeon's field. Recently Quicker advanced the opinion that in the treatment of primary lesions of intraoral carcinoma radium is preferable to surgery.

Simpson especially emphasizes the importance of having large amounts of radium available and using ampoules of emanation. He concludes that when possible ampoules should be inserted into the tumor and that when this is impossible large amounts should be used at a distance.

A JAMES LARKIN M D

Mottram J C and Cramer W. On the General Effects of Exposure to Radium on Metabolism and Tumor Growth in the Rat and the Special Effects on the Testis and Pituitary. *Q J Med* 1923 111 209

When young male rats are subjected to small doses of radium over long periods of time they rapidly become very obese and the testes show intense atrophy of the seminiferous tubules with hypertrophy of the interstitial cells. The pituitary gland shows changes in all three parts. Analysis of these phenomena led to the following conclusions:

The primary effect is the atrophy of the tubules. The shrinkage allows the interstitial cells to hypertrophy. A comparison with the effect of castration shows that the elimination of the functional activity of the seminal epithelium does not lead to obesity, but only to certain changes in the anterior portion of the pituitary gland. The obesity is the direct or indirect result of the hypertrophy of the interstitial cells which leads also to changes in the intermediate and posterior portions of the pituitary gland.

The spermatogenic and the interstitial tissue of the testes have two distinct and independent effects on the organism. Those of the interstitial tissue are the most profound. Even in the absence of the spermatogenic tissue the interstitial furnishes an internal secretion which causes definite changes in the intermediate and nervous portions of the pituitary gland and through this gland and possibly also some other endocrine glands affects the metabolism. These effects on endocrine organs and metabolism represent probably the actual basis of the general changes stated by Steinach to occur after the implantation of testicular substance tissue and when induced in a senile organism are described vaguely as rejuvenescence.

The author discusses the interrelationship of obesity and sterility and the pathogenesis of dystrophia adiposogenitalis.

Resection of the vasa deferentia causes no very obvious changes in the testes or pituitary gland and is not followed by obesity.

Rats which have been rendered obese by exposure to radium are more resistant to the growth of transplanted tumors.

A JAMES LARKIN M D

## MISCELLANEOUS

Granger F B. Physiotherapy *M d Cl N Am* 923 11 19

In the Boston City Hospital the conditions treated by physiotherapy include peripheral facial paralysis

stiff and painful shoulder delayed or non union of bone and hypertrophic arthritis

Peripheral facial paralysis may occur after refrigeration (probably as a result of infection) or may follow operation (for mastoiditis) or trauma (skull fracture). The treatment depends upon the character of the pain and the degree of degeneration. When there is much pain positive galvanism is used for its sedative effect but if the pain is slight the negative pole is used for stimulation. The type of stimulation depends on the degree and the duration of the degeneration. During the first ten days interrupted galvanism is used the positive pole when there is complete reaction of degeneration and the negative pole when there is incomplete reaction of degeneration. Radiant heat or diathermy and recuperational exercises are also employed. In the use of the galvanic current care is taken to prevent tiring the muscles.

Stiff and painful shoulder includes bursitis arthritis muscle tire or stretch and adhesions

An X-ray examination is made to determine the cause. The treatment aims at reducing spasm absorbing calcareous deposits such as those occurring in bursitis substituting an active for a passive hyperemia and stretching adhesions. Heat is used in the form of radiant heat or diathermy. Ionization has been shown by experience to aid in softening adhesions. Muscular relaxation and stretching up to the point of toleration are obtained by massage.

In delayed or non union of bone diathermy has induced bony union in 80 per cent of the cases in which proper fixation was secured.

In hypertrophic arthritis fairly permanent relief from pain and stiffness may be expected even though the X-ray findings remain unchanged. Medical diathermy and ionization of sodium salicylate of sodium chloride and of water charged with radium emanation are used.

The author gives in detail the technique for each of the methods of treatment mentioned.

LEWIS R LEWIS MD

## MISCELLANEOUS

### CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Knox R. Some Aspects of the Cancer Problem  
*Am J Ro Ig I 1924 17*

Although penetrating radiations which will reach practically any depth of tissue are possible and the so called lethal dose for cancer sarcoma tubercle and most of the normal tissues has been determined the constant and certain cure of cancer by radiotherapy is not an established fact. The effect is controlled not only by the particular type of the tumor but also by its condition or stage of progress at the time it receives the radiations by the surrounding tissues and by the patient's general condition.

Biological response must become one of the factors of dosage and will always be the determining factor. To determine the nature of that response close observation and systematic examination of large numbers of patients who have received measured doses are necessary. Careful analysis of all the factors at work in favorable cases should lead to a correct estimation of the probability of effecting a cure in cases suitable for radiotherapy.

Biological processes set going by radiations appear to continue after the cessation of treatment and if such radiations are repeated at proper intervals the action may be carried on over a long period of time with relatively satisfactory results. The effect in these cases is due undoubtedly to a summation of dosage one or more lethal doses being administered in the course of several days or weeks.

The active agent in the production of therapeutic effects is the radiation absorbed by the tissues. The question of wavelength is of importance in this connection because upon it in large measure depends the number of rays reaching tissues at different depths below the surface. The most suitable wave length for general use is that which is absorbed in the tissues undergoing treatment.

The question of the duration of the exposure is also of importance. A method of treatment which may so severely damage the normal tissues that further treatment cannot be given for six or eight weeks is unsatisfactory and particularly undesirable if the desired effects can be obtained by any other means.

The author attempted to obtain continuous action by giving frequent small doses daily every other day or at longer intervals according to the effect observed. A large number of patients were treated by this technique and some of them received a dose of twenty to thirty or even forty hours exposure spread over several weeks or months. The results in a number of cases were very encouraging. Patients with blood diseases lymphadenoma sarcoma and carcinoma were treated in this way. In a number of

cases it was possible to obtain with much less risk a curative effect equal to or better than that claimed for the lethal dose at one sitting.

ADOLPH HARTUNG M.D.

Kotzareff A. and Weyl L. The Selective Fixation of Radium Colloidal Substances upon Embryonic and Neoplastic Cells and Its Importance in the Diagnosis and Treatment of Cancer (La fixation des substances colloïdales par les cellules jeunes et néoplasiques son importance dans le diagnostic et le traitement du cancer). *P Ed Ia 193 11925*

It is well known that certain substances when introduced into the blood stream become fixed to certain cells. In this article the authors report the results of a study of the selective action or fixation upon embryonic and cancer cells of colloidal solutions to which radium emanation has been attached.

The amount used was from 1 to 10 ccm of solution to which about 0 mc of emanation had been fixed.

To demonstrate the fixation of embryonic cells a pregnant guinea pig was used. The solution was injected intravenously. Photographic plates were made at once and again a few hours later. In the former the cavities of the heart were seen and in the latter an exact outline of the fetuses.

To demonstrate the fixation of cancer cells an intravenous injection of 10 ccm of the solution charged with about 25 mc was given a patient suffering with cancer. A photograph made immediately showed the passage of the solution through the vein proximal to the point of injection. Later a plate made over the region of the neoplasm showed the exact outline of the tumor. This image Kotzareff and Weyl call a cuneograph.

The cuneograph is of especial value in the diagnosis and localization of metastases which have caused no anatomical or functional disturbances. After operation for cancer it may be used to prove whether or not the tumor has been entirely extirpated.

The authors cite numerous examples of selective fixation in chemical physical physicochemical and biological fields such as the fixation of nuclear substances the absorption of gas by charcoal the affinity of tetanus toxin for the central nervous system etc.

The theories of electron and ionic activity are discussed and mention is made of the fact that the X rays and radium acting on a colloidal suspension of a metal especially aluminum cause a flocculation of the metallic particles.

It is suggested that following the application of radium emanation to a cancerous growth the positive charge of the albumin is saturated by the neg-



active beta rays and the negative charge of the globulin by the positive X rays. Subsequent electrolysis causes very little change in the serum. This process is repeated as the blood passes through the cancerous growth until sufficient emulsion has been absorbed to make a cuneograph possible. With the aid of an electroscope the presence of emanation may be demonstrated in the tumor area.

I M HAY M D

#### GENERAL BACTERIAL MYCOTIC AND PROTOZOAN INFECTIONS

Levinson S A. An Intravenous Method for the Early Diagnosis of Tuberculosis in the Guinea Pig. *III. M J* 1923 1 v 35

The usual method of animal inoculation employed in the diagnosis of tuberculosis requires from four to six weeks for the production of gross lesions. By intravenous injections of positive sputum the author was able to demonstrate lesions in from ten to fourteen days. Inoculations directly into the liver or spleen produced results less rapidly and intra-peritoneal injections required a still greater interval for the formation of tuberculous lesions. The method employed consisted in the injection into the jugular or mesenteric vein of a guinea pig of from 1 to 2 c cm. of a suspension in normal salt solution of the centrifugate of a specimen of sputum treated according to the method described by Petroff.

WALTER H N DLER M D

#### MEDICAL JURISPRUDENCE

Liability for X Ray Dermatitis. *Ross & Roberts* 19 N B p 38

In July 1920 Rost was afflicted with pustular acne on the face of the sebaceous glands. He applied for

treatment to Dr Roberts and was given X ray treatments on July 25, 9 and 11. In a week an area of about 144 sq in on his back became red and irritated. A few days later this area turned blue and then became black. The skin cracked and began to peel and pus was formed. The skin appeared to be supersensitive and peculiarly susceptible to the X ray. It was shown that the treatment was the usual and ordinary treatment for the disease. Rost sued Dr Roberts for damages.

The doctor claimed \$560.00 for professional services for this and other treatment. The case was tried before a jury who found in favor of the doctor and awarded him the \$560.00. The Supreme Court of Wisconsin sustained the verdict.

WILLIAM E. MOONEY

Drainage Tube Left in the Abdomen. *Cleary v Durant* 137 N E R p 31

The plaintiff was operated upon for appendicitis on July 29 by Dr Charles Durant. On August 4 symptoms of sepsis having appeared, the doctor inserted in the wound for drainage a piece of rubber tubing about 12 in long and 3/8 in in diameter. Until August 14 he dressed the wound and inserted a new tube each day. On August 15 he went on a vacation leaving the patient in the care of Dr Laskey who dressed the wound first on August 16 and continued as the physician in charge until September 6 when the wound appeared to be closed and healed. The following September the patient's health began to decline and the site of the wound became tender. A nurse who was called pulled from the wound which had opened a tube about 2 1/2 in length which was covered with blood. A verdict against the Dr Durant for \$1,500 was sustained by the Supreme Court of Massachusetts.

WILLIAM E. MOONEY

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NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND

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## SURGERY OF THE NERVOUS SYSTEM

## Brain and Its Covering Cranial Nerves

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### Esophagus and Mediastinum

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## SURGERY OF THE ABDOMEN

### Abdominal Wall and Peritoneum

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## SURGERY OF THE BONES JOINTS MUSCLES TENDONS

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JUNE 1944

# International Abstract of Surgery

*Supplementary to*  
**Surgery, Gynecology and Obstetrics**

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Editorial communications should be sent to Franklin H. Martin, Editor, 54 East Erie Street, Chicago.  
Editorial and Business Office, 54 East Erie Street, Chicago, Illinois, U.S.A.  
Published for the British Association of Surgeons by Tindall & Co., 8 Henrietta Street, Covent Garden, London, W.C.





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## EDITOR'S COMMENT

**I**NTERNATIONALISM has been a word much in the public ear during recent years and the reaction to it has varied from sincere interest and concern to bitter antagonism in accordance with the political belief and ideals of the auditor. That fierce knows no national limitations is an old saying that medical science which of all the sciences most closely touches human sorrow and human well being knows no restrictions of boundary or language is exemplified anew in an impressive manner by a number of the abstracts appearing in this month's issue of the INTERNATIONAL ABSTRACT OF SURGERY.

The comprehensive presentation of the subject of cholelithiasis with particular reference to gall bladder infections and pancreatitis by Muscatello of Italy (p 325) the discussion of the operative treatment of inflammation of the appendix and the cellular tissue of the pelvis by Werner and Stiglmayer of Germany (p 532) and the description of a new operative procedure in the treatment of partial paralysis by Royle of Australia (p 510) indicate a standard of medical teaching and practice in these widely separated centers that our most gifted and brilliant surgeons would be happy to claim as their own.

In addition to Royle's presentation which American surgeons who have lately returned from Australia characterize as an important contribution to the surgery of the nervous system a number of abstracts in this month's issue will prove particularly interesting to the neurological surgeon. The careful observations of the results of operations for injuries upon the peripheral nerves collected and recorded by Elliot and Britton of Manchester and London (p 511) summarize the late results of a large series of cases of peripheral nerve injury occurring both in military and civil life. Dickson and Duvell's discussion of injuries to peripheral nerves associated with fractures (p 554) and the cases of injury of the peripheral nerve on the forearm (p 553) will interest the orthopedic surgeon and the ophthalmologist.

**T**HE subject of thoracic surgery is well represented in this month's issue of the International Abstract of Surgery.

The abstracts of a number of papers presented at a recent meeting of the Association of Thoracic Surgeons indicate some of the problems which are holding the attention of workers in this specialty. Hellman's paper on thoracic plasticity in the treatment of diffuse unilateral bronchiectasis (p 515) Lambert and Miller's studies on abscess of the lung (p 514) Lilienthal's interest in the necessity of thoracotomy in cases of malignant tumor of the lung (p 516) and the discussion of Matarahim and Snyder upon the prophylactic effect of pneumothorax in animal and human tuberculosis represent interesting and important phases of the level present of modern thoracic surgery.

In the field of abdominal surgery only a few subjects can be mentioned. A Keith's paper on the origin and nature of hernia (p 519) embodies the results of painstaking extensive studies in anatomical and embryological dissection of the principles of treatment of gastric ulcer (p 520). Anderson's report of a case of hemorrhagic rectocolitis treated with antihemorrhagic serum (p 54) Wilkie's comment on a case of intestinal obstruction saved by temporary extra abdominal anastomosis through a tube (p 523) and Fanter's emphasis on the importance of the rectum as a factor in cholecystic infections (p 523) are worthy of special attention.

In obstetrical literature subjects pertaining to cesarean section seem to have a pre-eminant interest. In this month's issue of the International Abstract of Surgery different phases of obstetrical surgery are well represented. Thompson's description of subtotal and cranial injuries of the fetus and delivery (p 521) Dietrich's review of the cesarean section and methods of treatment of placenta previa (p 535) and Hirst and Van Dusen's report of a series of cases of low cervical cancer secured (p 531) form a group of papers of interest in the field of obstetrics.

# INTERNATIONAL ABSTRACT OF SURGERY

JUNE 1924

## ABSTRACTS OF CURRENT LITERATURE SURGERY OF THE HEAD AND NECK

### EYE

Duane A. The Associated Movement of the Eyes The Nerve Centers Conducting Paths Production Varieties and Derangements  
*Am J Ophth* 1924 35 vi 16

Duane presents the theories which seem most probable to him regarding the associated ocular movements and the nerve tracts and the centers concerned in such movements. He describes the centers in the cerebral cortex, the association pathways connected with the cerebellum and labyrinth, the descending paths connecting the centers with the nuclei and the functions of the center.

Attention is called to the fact that there are inhibitory functions controlled by these centers and that uniscentric movement differs from binocular movements in that the latter arise from stimulation of both sides of the brain and the former from an impulse beginning in a center on one side of the brain. Associated unilateral and bilateral paralyses are discussed. VIRGIL W. C. T. M.D.

Feeling A. Ocular Palsies. *B. I. M. J.* 94 3

Feeling gives a brief review of ocular palsies taking up first their anatomical and physiological aspects, second their pathological aspects and third the findings in forty-five of his own cases. He describes the anatomy of the nerve fibers particularly their origin and course and the mechanism of their interruption. The lesion which may interrupt the neuromuscular chain at various sites is tabulated.

In discussing the pathological aspects, Feeling follows Paton's classification. Of fifteen syphilitic cases in his series, nine were cases of meningovascular syphilis and six were cases of tabetic degeneration. Of five cases of cerebral tumor, three were of special interest because the eye symptoms were the first to draw attention to what eventually proved to be a fatal disease. With regard to the Argyll Robertson pupil, Feeling agrees with those who define it as an absence or a gross diminution of the reaction of

the pupil to light with preservation of the reaction on convergence accommodation. Three of his cases of Argyll Robertson pupil were cases in which syphilis was excluded. THOMAS D. ALLEN, M.D.

Peter I. C. The Relation of Exophoria in Early Presbyopia to Refractive Errors. *B. I. M. J.* 194 0

In the early presbyopic period there are two types of exophoria cases. One comprises those which date from early adult life and the other those incident to failing accommodation. Only the second group is considered in this article.

The condition is most prevalent in hypermetropes who have not worn a proper correction until the age of 35 years or later. When the hypermetropia amounts to two or more diopters, a full correction, particularly if used only for near vision, disturbs the established relation between convergence and accommodation sufficiently to give rise to more or less lasting symptoms. The repressed convergence thus brought about often leads to an exophoria of 10 to 15 degrees. The symptoms are headache, drowsiness on attempting to read, redness of the lids and vague nervous conditions which are usually attributed to other causes.

The first step in treatment is careful refraction with a cycloplegic if this can be used safely. If exophoria is marked, the full correction is prescribed for near vision only and a weaker glass for constant use. The strength of the constant glass is increased as the patient's tolerance warrants.

Prismatic exercises are valuable if they are properly carried out. Marked improvement in the condition often results even though the exophoria is only slightly improved as shown by the Maddox rod test. The following points are important:

1. The exercises should be carried out at 6 meters with light at a proper level, not above the eyes.
2. Full correction should be worn during the exercises.
3. Prisms must not be tilted up or down.

4 In real and primary strength should be gradual  
5 It must be ascertained that the patient fuses the images

6 The patient must be seen at the office sufficiently often to insure the use of proper methods

7 Home practice should be conducted daily in fifteen minute periods **MANFRED R. WALTZ M.D.**

**Peter L. C.** The Surgical Treatment of Concomitant Squint *Ill. J. M. J.* 1924 xiv 266

The eyes may be straightened by tenotomy by tendon tucking and by resection with or without advancement. The treatment depends somewhat on the type of squint and whether or not the deviating eye is amblyopic. If the eye is hopelessly amblyopic only a cosmetic operation is indicated and the surgery may be confined to one eye. In such cases if there does a resection with advancement depending on the angle of squint. If this is not sufficient a tenotomy of the opposing muscle in the same eye is warranted.

If vision is equally good in both eyes and fusion is fair or good the same amount of surgery should be done on both eyes and the operation should consist in resection with or without advancement and tenotomy. The same treatment is indicated in cases of alternating convergent squint.

In divergent squint tenotomy is of more value and should be associated with resection and advancement whether one eye is amblyopic or not.

Immediately after the removal of the bandages fusion training should be instituted providing the amblyopia is not too marked.

**THOMAS D. ALLEN M.D.**

**Paschell C.** The Differential Diagnosis Between Parinaud's Conjunctivitis and Conjunctivitis Necroticans Infectiosa *B. J. Ophth.* 94 135

The author states that Parinaud's conjunctivitis is not a clinical entity but a syndrome the salient features of which are unilateral conjunctival inflammation accompanied by suppuration in the preauricular and submaxillary glands and a rise in the temperature. Several conditions such as tuberculosis and leptothrix have been named as causative agents.

One type of conjunctivitis which has a definite etiology is termed conjunctivitis necroticans infectiosa. The organism isolated has the morphology of a coccobacillus 0.25 by 2 micra and is gram negative. Specific antibodies were demonstrated in the serum of patients suffering from the disease and guinea pig inoculation produced exactly the same results as inoculation with portions of affected conjunctiva namely the formation of typical white necrotic points in the spleen and death in seven or eight days. The author has named the organism micro-coccobacillus polymorphus necroticans. In animal experiment it is the surest method of diagnosing this condition.

**MAURICE H. WITZ M.D.**

**Blegvad O.** Xerophthalmia Keratomalacia and Xerosis Conjunctivae *Im J. Ophth.* 19 43 s vii 89

Blegvad collected the histories of 434 cases of keratomalacia in children and thirteen cases in adults occurring in Denmark during the years 1909 to 1920. The experimental work which determined the importance of the vitamin fat soluble A is reviewed. While in an animal food plays the most important part in the development of the disease in man other factors must be taken into consideration. The condition appeared earliest in the youngest children receiving a diet deficient in fat soluble A. The largest number of cases were seen in May and December. The mortality rate of 21 per cent was high but was lower than the previous death rate before milk treatment was given.

Of the 298 patients who survived 27 per cent were blind 24 per cent had vision greatly reduced in both eyes 35 per cent had vision greatly reduced in one eye but good vision in the other and 14 per cent made a complete recovery without reduction of vision. **SIGNE WESCOTT M.D.**

**Hubny M. J.** Localization of Foreign Bodies in the Eye *R. J. Gy.* 924 ii 33

No examination for possible presence of a foreign body in the eyeball should be considered complete without the use of the X-ray. If a foreign body is demonstrated it should be localized by means of a localization apparatus and not just by anteroposterior and lateral views as recommended by a prominent ophthalmologist. X-ray localization permits operative measures in the vicinity of the foreign body and therefore decreases the amount of injury in extraction. Reliance should not be placed on postero-anterior and lateral projections because of variable factors. Stereoscopic is even less reliable. The variable factors which must be overcome are: (1) the location of the central beam of the X-ray which affects the situation of the projected foreign body; (2) the size and shape of the helmet; (3) the location of the eyeball.

From a legal standpoint a negative report should always read: The eye appears negative for foreign bodies.

Hubeny establishes the presence of an opaque foreign body by using X-ray films exposed simultaneously. On one half is a postero-anterior projection and on the other a lateral projection. Intensifying screens should not be employed. Dependence cannot be placed on movement of a foreign body to demonstrate its presence in the eye as foreign bodies embedded in the sclera or eye muscles produce the same effect and movement has less diagnostic value the nearer a foreign body lies to the cornea. When an instrument such as Swastika is used the head should be adjusted before each exposure. When the foreign body is a splinter of glass a roentgen ray examination should be made. In borderline cases extraneous elements should be used.

**M. J. HUBNY M.D.**

Cord R Decoloration of the Superficial Layer of the Iris *Am J Ophth* 19 4 35 vii 1

Cord reports four cases of decoloration of the iris following iridocyclitis glaucoma and contusion. The cause of this phenomenon is obscure but is probably an interruption of the blood supply or a nerve disturbance. *WILL WESCOTT M D*

Bedell A J The Lens as Seen with the Gullstrand Slit Lamp and Corneal Microscope *J Am M* 19 4 15 1 3/3

Bedell has done a very fine piece of work in his study of the various ocular structures with the corneal microscope and his artistic is most excellent. This paper is accompanied by a large number of colored drawings showing the various conditions found in the normal lens and in the lens in cases of (1) traumatic cataract (2) lamellar cataract (3) complicated cataract (4) chronic glaucoma (5) indolent glaucoma and many other conditions. *THOMAS D. ALLEN M D*

Clapp C. A.liquefaction and Absorption of the Crystalline Lens Relation to Intact Opacities *J Ophth* 1924 3 1 3

Clapp reviews the embryology, growth, nutrition, and chemistry of the crystalline lens. Not satisfied with Cunn's or Jarons' explanation of the cause of absorption of traumatic cataract, he suggests that the alluminous may be a digestive proteolytic ferment in the lens or in the aqueous or by a combination of two such ferments. He reviews the theories of cataract formation and discusses the treatment of cataract on the basis of autolysis. *WILLIAM WESCOTT M D*

Woods H J Report of Two Experiences with Acute Glaucoma *Am J Ophth* 1924 3 1 3

Woods reports two cases of congenital glaucoma in which iridectomy was done with good results. In the first case the presbyopia was indicative of pain on near work rather than of poor vision. The iridectomy was taken at various times, a fundus in the morning showed a congested glaucoma. The patient yielded to cecine. Iris tincture was applied to the eye and a usual hemorrhage with a few drops of blood before it was excised. The patient returned to work in two weeks. The patient reported that he was unable to see the color of his blood was tinted with a bluish green. The eye flushed the pupil dilated a little and suddenly increased in size. A small amount of the iris later an iridectomy was performed. The patient suffered no pain and a relief only to the use of mydriatics. The eye was then treated with a small amount of pain. The patient was then treated with a small amount of pain. *WILLIAM WESCOTT M D*

glaucoma in the right eye. The patient had had an attack of grippe complicated by facial erysipelas. Vision became reduced and tension increased. Because of the erysipelas operation was considered impossible. Therefore cecine and pilocarpine were instilled. A week later adrenalin was used to reduce the conjunctival irritation in the left eye. This was followed by rapid dilatation of the pupil. Under ether anesthesia iridectomy was done on both eyes. In the right eye the tension was reduced but vision was not improved. In the left eye the corrected vision 6 months later was 20/20. *WILLIAM WESCOTT M D*

Wilder W H Some Observations on Iridotaxis in the Treatment of Glaucoma *J Am M* 1924 3 1 3

The etiology of glaucoma being uncertain all methods of treatment are directed to the elimination of its most prominent symptom—increased intraocular tension. Even if the tension is reduced changes may continue to occur which ultimately restore sight. This is true more frequently in simple glaucoma than in the congestive type if the latter is operated upon early. In the chronic type the tension is too difficult to determine.

To determine the early stages of simple glaucoma Wilder advocates the recording of tonometric readings of tension and of its variation after the use of miotics and mild mydriatics, the charting of vision fields and a study of the central field for scotoma. Even if the central vision remains normal it is his practice to operate if the continued use of miotics fails to keep the tension within normal limits or to prevent contraction of the visual fields. Despite the traditional prejudice of most ophthalmic surgeons against incarceration of the iris and the possibility of infection the author has employed iridotomy with

his technique follows that of Borthen. A horizontal cut is made in the conjunctiva high above the limbus and a blunt dissection a tunnel about 4 mm wide made to the limbus. The eye is then held down with a keratome incision about 4 mm wide is made into the anterior chamber 1 mm from the limbus beneath the conjunctival flap. Small iris forceps are introduced, the iris is grasped at the pupillary margin and drawn into the wound in such manner that it is gripped posterior surface exposed and the sphincter is drawn out of the wound. Atropine is not used before the operation because it is difficult to make the iris thicker and more difficult to grasp but is used after the operation. The pupil is sutured. Only the eye operated upon is bandaged. If the procedure is successful there will be a lemma of the conjunctiva when the eye is dressed twenty-four hours after the operation.

Wilder reports thirty-six cases in which forty-eight operations were performed. Ten operations were successful in congestive and thirty-eight in chronic glaucoma. A reduction in the tension for a varying length of time was obtained in 50 per cent.

The immediate and remote dangers of this operation are slight. It gives as good results as trephination sclerectomy, and cycloclodial is and is preferable in cases in which the iris will bleed easily (high blood pressure and atheromatous blood vessels) and when previously performed operations have failed to give good results.

VIRGIL W. SCOTT, M.D.

**Traquair II M. Essential Considerations in Regard to the Field of Vision Contraction or Depression?** *B. J. Oph. 1924 1 49*

Traquair considers the field of vision not as a map with only outlines to represent the limits of the field but as a contour map showing those parts which are more sensitive than the others. A cross-section of such a contour map shows a high peak at the point of fixation with borders sloping irregularly to the periphery. On the nasal side after a somewhat gentle slope there is an abrupt drop at the 60-degree meridian whereas at the temporal side the drop is not nearly so abrupt and extends past the 90-degree meridian. In this area occupies the blind spot there is an abrupt drop to zero which appears as a very deep canyon.

Most of the pathological conditions found in the eye result in a depression in a part or in all of the field rather than in simple contraction. To measure such depressions Traquair uses targets of different sizes or different luminosity. With these he is able to trace the contour line of losses with considerable accuracy.

He finds that this method is usually of great advantage in the diagnosis of early glaucoma before very great damage has been done. In all perimetric work it is essential to select carefully the size of each test object and its distance from the eye with a view to the requirements of the particular case. These sizes and distances should be recorded.

THOMAS D. ALLEN, M.D.

**Hester Sir W. Holes in the Retina and Their Clinical Significance** *B. J. Oph. 1924 1 5*

Holes in the retina may be divided into macular and peripheral and each class is subdivided into traumatic and non-traumatic. Traumatic holes are produced by contrecoup tearing at the macula as the result of blows on the anterior segment of the globe. In some cases there may be the intermediate step of cystic degeneration resulting from the blow. Non-traumatic holes at the macula are due to retinohoroidal degeneration usually with cystic degeneration.

Peripapillary holes of traumatic origin may occur adjacent to the site of injury or in regions more or less distant. The production of holes in the retina in cases without a history of trauma has been ascribed to (1) cystic degeneration of the retina followed by spontaneous rupture of a cyst (2) an increase in the tension in the interretinal space in retinal detachments due to a high albuminous content of the fluid here (3) retinal detachment

occurring in areas where the retina is adherent to the choroid as the result of old inflammatory processes and (4) traction on the retina by fibrous bands of the vitreous.

Holes in the retina are of clinical significance in connection with the prognosis and treatment of retinal detachment. In no case in which a hole was present has detachment been due to a tumor. A hole can be diagnosed even though not demonstrable ophthalmoscopically if a reliable history of sudden diminution of vision is obtainable and retinal detachment is found to account for it. Such a conclusion follows since it is a recognized fact that a sudden detachment cannot occur without a hole. In the treatment of simple detachments by puncture of the subretinal space the outlook is far better in the absence of a hole. In general operative treatment is not indicated when a hole is present.

MAURICE R. WALTZ, M.D.

**Greenwood A. Retinal Venous Thrombosis** *J. Am. M. A. 1924 122 92*

Greenwood reports several cases of thrombosis of the central retinal vein. He concludes that the obstruction is due usually to an obliterating endophthalmitis and rarely to thrombophlebitis. He urges active treatment of what is usually thought to be a hopeless condition. He suggests inhalations of amyl nitrite, the internal administration of nitrates, pilocarpine, weats and milk purges. For long continued treatment small doses of syrup of iodine acid have been found of value. Myotics should be used even if tension is normal in order to prevent secondary glaucoma.

One of the cases reported was that of a patient who developed a ring of vitreous thrombosis of the central vein phlebitis in both eyes and secondary glaucoma.

VIRGIL W. SCOTT, M.D.

**Post M. H. Two Striking Cases of Optic Neuritis and Retinochoroiditis Secondary to Accessory Nasal Sinus Disease** *J. M. Stat. M. 1923 1 45*

In the first case reported by the author drainage was established into the right ethmoidal sinus. In the second case the well known ethmoidal sinus became the vision impaired to normal the neuritis disappeared and the scotoma became smaller and finally disappeared. An area of atrophy about the disk remained.

In the second case a pericentral ring shaped scotoma with an effect on vision was first noted. In five days the attack subsided. Six months later a kidney laparotomy including the lower nasal part of the sinus appeared. Definite retropharyngeal inflammation shaped extending up and from the concha magna congection of the nasal mucous membrane palatine tonsils and a drainage sinus from the upper tooth of the lower jaw. There was no disease of the sinus. Following the removal of the tooth the regression of the scotoma and macular degeneration of the vision dropped. Two

weeks later another tooth was removed. The scotoma then disappeared and vision became 20/15. One year later the scotoma appeared again but complete recovery followed local nasal treatments.

VIRGIL WESCOTT M.D.

## EAR

Patton W. T. Deafness and Its Prevention. *Orleans M. & S. J.* 1924 LXVI 3 9

The author describes the various types of deafness. Special emphasis is laid on the necessity of instituting thorough treatment early. The greater the duration of the deafness the less the chance of improvement under treatment. Neglect and under treatment of diseases of the ear, nose and throat in childhood are responsible for many cases of deafness in later life.

The most common causes of perception deafness are syphilis and focal infection.

WILLIAM B. STARR M.D.

Dutrow H. V. Some Practical Points in the Progress of Mastoid Surgery. *L. & C. P.* 924 1 145

The author calls attention to the rapid strides made in mastoid surgery during the past three decades. Mastoidectomy is no longer an operation dreaded by the surgeon as its high mortality rate has been lowered.

The diagnosis of acute mastoiditis is usually easy because of the advance in laboratory methods and the use of the stereoscope in the study of X-ray plates.

The incision is made from 3 to 5 mm. posterior to the junction of the auricle with the scalp and conforms to its curvature. The periosteum is carefully preserved as it aids in the formation of new bone. The upper part of the wound is closed with interrupted silkworm gut sutures and the lower third allowed to remain open for the removal of the packing.

In the author's opinion the recent suggestion made by Barany relative to closing the aditus by means of fibrous tissue is practical and of merit. If this method is adopted it will be the means of obtaining dry ears without the usual elaborate plastic methods which frequently fail.

The transfusion of whole blood to increase the patient's resistance will save many lives.

Early recognition of the degree of middle ear and mastoid involvement and rational surgical treatment will result in a lower mortality rate and the preservation of hearing.

JAMES C. PRINCE M.D.

## NOSE

Hansel F. K. Vasomotor Rhinitis. *J. A. M. A.* 1941 LXI 5

During recent years clinicians have investigated extensively the causative factors of vasomotor

rhinitis, more particularly the seasonal vasomotor rhinitis or so called hay fever. There is however a group of cases in which this type of symptoms continues throughout the year without definite seasonal activity.

The author reviews the clinical course and the reactions to treatment in 100 cases of vasomotor rhinitis observed at the Mayo Clinic during the last five years. The cases were grouped for study according to the methods of previous observers. Particular attention was directed to the so called reflex type of case in which no protein sensitization factors were demonstrable. The negative skin sensitization tests in these cases do not prove that such factors are absent. There were sixty-one cases in this group, the remaining thirty-nine in which the skin reactions were positive were classified with the protein sensitization group.

Vasomotor rhinitis may be divided into two distinct types: the reflex in which no definite protein sensitization factors can be demonstrated and the protein sensitization in which there is sensitization to the proteins of foods, bacteria, animal emanations and pollens.

In the reflex type are many contributing factors other than the local pathologic conditions in the nose; these include age, sex, occupation, climate, temperament and environment. General systemic functional or pathologic conditions play important parts. The cardinal symptoms of the reflex type are sneezing, a nasal discharge and nasal obstruction with little relation to seasons. Closely associated symptoms are lachrymation, headache, periodic deafness, asthma and bronchitis. All of the symptoms may vary.

In the protein sensitization type, anaphylaxis and allergy may be considered the important factors, but usually there are other causes more or less important.

The nervous mechanism is the same in all cases and a thorough knowledge of it is essential in the explanation of the nasal symptoms.

The pathologic condition is essentially uniform, namely a pale, swollen, boggy nasal mucous membrane with polypoid degeneration or polypoid hyperplasia. Definite sinus infection is rare. The cloudiness of sinuses in the roentgenogram is caused usually by the swollen condition of the mucous membrane and thickening of the bony lining. Such infection should always be ascertained or ruled out by the usual diagnostic procedures.

The treatment consists in the removal of all possible causes and local applications to the sphenopalatine ganglion. In the reflex type of case the latter is the treatment of choice. Satisfactory and gratifying results from the standpoint of both the patient and the physician have been obtained by the use of silver nitrate in concentrations of from 12 to 50 per cent. The same method of treatment is applicable to the protein sensitization type. Operative procedures should be carried out judiciously. The relief of anatomical nasal obstruction adds a

great deal to the restoration of the respiratory function of the nose and to the relief of the symptoms of physiological obstruction. A change of climate may be very beneficial and should be tried in certain selected cases especially if other forms of treatment have not been successful.

**Sluder C. The Anatomy of the Sphenoid Fissure**  
*Am J Otol Rh of E Laryngol* 1933 xx1: 118

The author noted that injection of the nasal (sphenopalatine) ganglion was followed sometimes by paralysis of the third cranial nerve and sometimes by paralysis of the sixth cranial nerve. This suggested that the position of the nerves in the sphenoid fissure is inconstant.

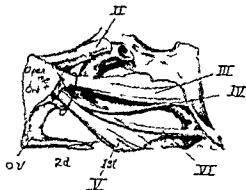


Fig 1. Sphenoid ganglion represents the connection of the sphenoid fissure with the trigeminal ganglion in the both the first and the second division. Left. The sphenoid ganglion is shown through the sphenoid foramen. The sphenoid ganglion is shown through the sphenoid foramen. The sphenoid ganglion is shown through the sphenoid foramen.

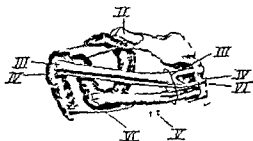


Fig 2. Frontal view of the sphenoid fissure. The sphenoid fissure is shown through the sphenoid foramen. The sphenoid ganglion is shown through the sphenoid foramen. The sphenoid ganglion is shown through the sphenoid foramen.

A series of dissections on the cadaver verified the supposition. As a rule the abducens was lower most but occasionally the oculomotor was lower in its trunk or in some of its branches.

STEFAN A. SCHULZ, M.D.

**Carter W. W. Abscesses of the Nasal Septum**  
*Etiology and Treatment* *W D J & R C* 924  
C1 Supp 2

Carter discusses abscesses of the nasal septum with special reference to the treatment of the resulting deformity. Practically all such abscesses are the result of trauma. In the treatment Carter makes an L shaped incision on the left side the long arm of the L corresponding to the anterior border of the septum and the short arm extending backward along the floor of the nose. The incision is made free into the abscess cavity. Carter then washes out the pus with arm sterilized salt solution on swabs until the cavity first with sterile absorbent cotton until it is practically dry then with carbolic acid and last with 95 per cent grain alcohol and then introduces one of his gold wire splints into each nasal fossa.

For the correction of saddle back deformity due to abscess the author transplants autogenous bone and cartilage grafts. A strip of conjoined bone and cartilage from a rib is introduced through a slit in the roof of the left nasal cavity in such a manner as to build up and support the nasal bridge. The upper end of the graft which is placed in contact with the frontal bone just above the nasal spine establishes bony union in about 6 months. The lower end of the graft which is composed of cartilage extends into the tip. The transplant operation is done as soon as the abscess has healed. Orro M. Rott, M.D.

**Cohn R. D. A Few Notes on Halle's Clinic with**  
*Special Reference to Endonasal Surgery*  
*Clinical Statistics* 1934 x 6

In this contribution to Cohn discusses the practice at Halle. (1) in (1) turbinectomy (2) submucous septum resection (3) operation for the closure of a sphenoidal perforation (4) the endonasal frontal sinus operation (5) operation on the ethmoid (6) operation on the sphenoid (7) the radical antrum operation (8) blindness following injection into the orbit (9) operation for orbital and (10) the endonasal lachrymal sac operation.

**Turbinectomy.** Halle does not reform turbinate tissue. He cuts off hypertrophied tips but does not sacrifice the structure itself even when operating on the sinus.

**Submucous resection of the septum.** Submucous resection of the septum is the most frequent of the operations performed at the Halle Clinic. To all anesthesia is used. A modified Killian incision is made the cartilage is removed with the straight Ballenger swivel knife pressed down and reimplanted and the septum flap is sutured with Halle's crook shaped needle. The operation is rarely performed before the twelfth year of age.

**Operation for the closure of a septum perforation** The procedure is a modification of the Yankauer plastic. The perforation is first closed partially by turning into it two or three small flaps made along its lower edge. A large semicircular flap is then outlined above it and after being displaced downward so as to cover the perforation and the smaller lower flaps completely is sutured in place. Tampons in the opposite side serve to press the smaller flaps against it.

**Endonasal frontal sinus operation** After the usual cocaine novocaine anesthetization the middle turbinate is subluxated toward the septum. A large mucoperiosteal flap corresponding to the entire region in front of the middle turbinate is then made by means of three incisions: the first from the head of the middle turbinate upward to the roof of the nose; the second extending along the roof of the nose to the piriform aperture; and the third extending thence along the free edge of the aperture to the head of the inferior turbinate. The flap thus made is turned down over the inferior turbinate. Theagger narium is then chiseled away the anterior ethmoid cell and the opening into the frontal sinus being thus exposed. With Halle's blunt headed pear shaped electric burrs this opening is then enlarged. The frontal sinus is curetted the flap replaced and the nose packed.

**Ethmoid operation** The middle turbinate is subluxated and pressed tightly against the septum. With a long narrow knife two sagittal incisions are made: one just under and along the lateral surface of the middle turbinate and the other along the medial surface of the lamina papyracea both meeting at the head of the middle turbinate. Lynch forceps and a curette are used within the lines of the two incisions. By this method the middle and posterior ethmoids are opened. The anterior cells are opened by the technique for the frontal sinus operation.

**Sphenoid operation** Usually the removal of the anterior wall suffices but when this opening tends to close two flaps are made in the shape of an H: the lower flap as large as possible. After the anterior and a large part of the inferior all have been removed (the latter by means of a pear shaped burr) the two flaps are turned into the cavity and kept in place by tampons.

**Radical operation** Th. Canfield Strimann method is used in order to avoid the necessity for an oral incision.

**Blindness following cleft lip and palate** When injections for local anesthetics have by mistake entered the orbit producing immediate blindness Hall makes a number of broad and deep incisions: to the orbit above and below in the broad opening of the orbital periosteum. Great haste is necessary as delay of a few hours will result in permanent blindness the condition being due to an acute edema in the region of the optic foramen.

**Operation** An L shaped incision made in the nasal mucosa beginning in front of the head of

the middle turbinate extending downward to the head of the inferior turbinate and thence continuing horizontally across the floor of the nose to the septum. Through this horizontal incision the mucoperiosteum lining the floor of the nose is elevated and the lower anterior portion of the nasal wall of the antrum is brought into view. The entire lower border of this antral wall is then chiseled from the nasal floor and the anterior vertical border of the antral wall is chiseled through. The entire inner (medial) antral wall is carefully pushed over to the septum and held tightly against it by gauze packing in the antrum the turbinates and septum having been previously freshened in order to prevent the formation of adhesions.

**Endonasal lachrymal sac operation** The technique used is a modification of the original technique of West. The operation is done entirely endonasally. It is not described in detail.

The article is concluded with the following summary:

1. The tendency in nasal surgery is definitely a way from the radical external methods used in the past twenty years.

2. As far as possible all nasal operations should be done intranasally.

3. The establishment of normal nasal respiration is in many cases all that is necessary for the cure of chronic nasal empyema especially antral and sphenoidal.

4. Ozena hitherto incurable is now a curable condition.

5. The problem of chronic lachrymal disease long the despair of oculists has been virtually solved. The key to the solution is the restoration of drainage from the conjunctival sac into the nose.

OTTO M. R. T. M.D.

## MOUTH

Dujarier Pinard and Grand. Cancer of the Tongue in a Girl 21 Years Old (Can. de l'Inguine une jeune fille de 21 ans). B. l. m. Soc. de Ch. de Par. 1923. 1537.

In May 1922 the patient noted some small lesions on the tongue which were leukoplakic in character. She had worn a dental plate from 1908 to 1914. In June 1922 she treated the lesions by mouth washes. In May 1923 one of the lesions became purple. Her dentist made two local applications of novarsenobenzol and advised her to use mouth washes of potassium chlorate. In September 1923 the site of the lesions became inlurated and bright red. Later ulceration occurred.

In spite of a negative Wassermann reaction the lesions were considered gummata and treated by injections of 914. As these treatments were without effect the patient sought hospital treatment.

Biopsy led to a diagnosis of epithelioma. On the mother's side of the family there was a history of syphilis.

SALVATORE DI PALMA M.D.



## NECK

Lahey F H A Review of Another Year's Work with Thyroid Disease *Bst n St & S J* 1924 c c 153

On the basis of another year's work with thyroid disease the author concludes that thyroid extract is contra indicated in toxic cases and that prolonged iodine feeding may convert non toxic into toxic goiter. Hyperthyroidism is always associated with an increase in the metabolic rate and the cure of hyperthyroidism causes the return of the basal metabolism rate to normal provided there are no other conditions responsible for its elevation. Basal metabolism readings are of value in neuroses simulating thyroidism because the rate in neurosis is normal.

Basal metabolism readings uncorrelated are not a reliable guide to the number or extent of operations a patient will be able to stand. Minus degrees in the basal metabolism rate may be determined in cases free from clinical evidence of myxedema yet made subjectively better by raising the rate to normal with thyroid feeding. In severe hyperthyroidism multiple stage measures are life saving procedures.

Thyrocardiac cases first seen in decompensation may be restored to striking cardiac capacity if it is possible by thyroectomy to remove the intoxication and to restore the heart rate to within the normal limits. The most dreaded uncertain and uncontrollable factor is the hastinitis.

The moderate value of X ray treatment is more than outweighed by its disadvantages. Thyroid surgery done in a general clinic equipped for the care and study of these cases will show few failures to cure and a mortality rate rarely over and in most cases under 1 per cent.

ARTHUR L. SHREFFLER M.D.

Goodwin G M and Long W B Roentgen Ray Therapy in the Treatment of Exophthalmic Goiter *Am J M Sc* 924 clx 38

There is considerable difference of opinion as to the exact cause of exophthalmic goiter and the proper method of treating it. Some claim that surgery is the only effectual method of treatment others impressed by the surgical risk and the frequency with which the symptom recur after operation go to the other extreme of condemning surgery altogether. In recent years enthusiastic reports have been made of the results of roentgen ray therapy. The readiness with which patients submit to this treatment and the absence of associated risk recommend it.

The authors report nine cases of toxic exophthalmic goiter treated with the roentgen ray. In five the results have been satisfactory. In one case the effect of the treatment is doubtful and in another no conclusion can be drawn because the treatment was interrupted. In the two remaining cases the toxic action seemed to increase in spite of prolonged treatment.

ARTHUR L. SHREFFLER M.D.

Reid J M Roentgen Ray Therapy in Thyrotoxicosis Its Effect Measured by the Basal Metabolic Rate *Calif St J M* 924 xxii

In the great majority of cases with the signs and symptoms of thyrotoxicosis roentgen ray irradiation seems to have a beneficial effect. As the result of the differentiation between the Graves syndrome and toxic adenoma more satisfactory results have been obtained in the treatment. Most observers agree that in case of toxic adenoma the treatment of choice is surgical intervention. The situation with respect to Graves disease is less satisfactory there being considerable controversy as to the proper therapeutic measures.

The roentgen ray seems to be effective in reducing the metabolic rate and overcoming the signs and symptoms of thyrotoxicosis. Determination of the basal metabolic rate affords the best check on the results of treatment and should be made a routine measure in X ray treatment. A period of from three to six months is necessary to obtain marked improvement or return to normal. The higher the initial metabolic rate the longer must treatment be continued. None of the author's fifty five patients was injured by the irradiation. There were no deaths.

ARTHUR L. SHREFFLER M.D.

Mayo C H The Function of the Thyroid Gland and the Lowered Mortality Following Its Surgical Treatment *J Id n State M* 15 94 ii

The author reviews briefly the present position of thyroid surgery. He accepts the classification of diseases of the thyroid introduced by Plummer and emphasizes particularly the difference between cases of exophthalmic goiter and cases of adenoma showing hyperthyroidism. He states the difference epigrammatically thus: Adenomatous goiter with hyperthyroidism is pure hyperthyroidism and exophthalmic goiter is hyperthyroidism plus dys thyroidism.

He regards the giving of Lugol's solution in cases of exophthalmic goiter first advocated by Plummer as a distinct advance which if fully appreciated would lower the surgical mortality of this disease. The surgical approach he recommends is through a collar incision with division of the anterior muscles of the neck high up if they do not stretch sufficiently to give good exposure. Emphasis is placed upon the importance of applying hemostasis and closing them in line with the trachea and nerves and of suturing the gland in the same direction. If anoxemia occurs after operation because of injury of the trachea or laryngeal nerves tracheotomy is advisable. Examination of the larynx before and after operation is also advocated.

M. R. FLYNN M.D.

Dunhill T P Parathyroid Gland and Relation to Surgery *B J M J* 94 5

The larger parathyroid gland on each side is located on the posterior border of the lobe of the thyroid

near the point where the inferior thyroid artery breaks up into its branches before it enters the gland. Generally the blood supply is derived from one of the branches or the inferior thyroid artery but occasionally it comes from an anastomosis between a branch of the superior and inferior arteries. The liberation of this area of the lobe involves possible damage to a parathyroid either through its removal with the thyroid lobe or the inclusion of its blood vessels in a ligature.

To avoid these two dangers C. H. Mayo ligate the branches of the inferior thyroid artery within the capsule of the lobe. plunger mosquito forceps into the gland and divides the thyroid distal to the forceps.

In Graves disease the removal of one lobe will sometimes effect a cure. The surgeon must determine in the beginning what part of the gland must be left for physiological purposes. More than one operation will be necessary before the best results are obtained. If gland tissue is left scattered on both sides of the neck and across the trachea it is impossible to know exactly how much is left or to remove more gland substance with precision later.

In Dunhill's opinion the parathyroids are best protected by clean dissection of the posterior borders of the thyroid gland with ligation of the branches of the inferior thyroid artery as they enter the gland. In regard to parathyroid medication he is very skeptical. When tetany is present the injection of 4 gm. of calcium lactate is effective.

Dunhill has not attempted parathyroid transplantation but Coupland of Leeds has shown that this can be done in the dog and that the graft will remain alive for many months.

ARTHUR L. SHIFF, L.F.R. M.D.

Negus V. F. A Hitherto Undescribed Function of the Vocal Cords. *J. L. N. Y. G. I. C. O. I.* 1924.

Cords similar to those of man are found in numerous animal which are silent. Besides silent and noisy animal there are many which can produce a variety of sound when they so desire.

In addition to sound production the larynx has a function in connection with respiration and deglutition. It appears that the epiglottic artery, epiglottic fold and cartilage of Wrisberg and Santorini are parts designed for subserving the latter functions and have nothing to do with voice production.

For efficient fixation of the thoracic wall muscular act on exerted in particular by the abdominal muscles does not of itself give an efficient stationary position. To obtain perfect thoracic fixation it is necessary that air be imprisoned in the thoracic cavity while the effort lasts thus necessitating temporary cessation of expiration.

The changes in the growth of the human larynx are an actual and a relative increase in the length of the vocal cords. In the fetus and infant the cord are very short. They do not elongate until an age is reached when more powerful forearm efforts are

needed. It is the male who at puberty develops considerably stronger forearms and longer vocal cords.

The probable function of the larynx to which the author calls attention is based on three assumptions.

1. During efforts in which the forearms of an animal are moved by the lower fibers of the pectoralis major it is necessary that the thoracic walls be fixed.

2. Therefore air must be imprisoned in the thorax.

3. Sphincteric muscular action being insufficient to control the air inlet under diminished or increased pressure, valvular laryngeal action is brought into play and as in practically all animals the only type of valve one that can prevent entrance of air into the lungs, the air imprisoned in the thorax must be in a state of reduced pressure.

JAM. S. C. BRASWELL, M.D.

Thomson Sir St. C. Paralysis of Both Vocal Cords Secondary to Malignant Tumors of the Mammary Glands. *J. L. N. Y. G. I. C. O. I.* 1924.

The author reports an unusual and interesting case of paralysis of the vocal cord caused by growths in the mediastinum which were secondary to malignant disease of the breasts. Eighteen years after the removal of the left breast and fifteen years after the removal of the right the patient's voice suddenly changed. The first examination of the larynx revealed complete fixation of the left vocal cord but nothing in the neck or upper air passages to explain it. Fourteen months later the right cord became paralyzed. X-ray examination after involvement of the left cord showed that the paralysis was due to pressure on the recurrent laryngeal nerve from a neoplasm in the glands of the thorax. The patient died seventeen months after the first laryngeal symptoms were noted. There was no postmortem examination.

J. MES. C. BRASWELL, M.D.

Strandberg O. The Treatment of Rhinolaryngeal Tuberculosis by Finsen Light Baths and the Results. *Proc. Roy. Soc. Med. Lond.* 1924.

Strandberg claims that the Finsen light will cure rhinolaryngeal lupus vulgaris, tuberculosis of the larynx and tuberculosis of the nasal mucous membrane.

Between 1913 and 1921 379 patients were treated for lupus vulgaris. Of the 349 who remained under observation 304 were cured. Of 100 with definite laryngeal tuberculosis fifty-three were cured. Of ninety-seven who were hoarse seventy-eight regained a full and clear voice. Of thirty-seven who complained of pain on swallowing thirty-two were entirely relieved. The average number of treatments was eighty-six.

For the first few days patients with tuberculosis of the larynx or those who are seriously ill or feverish lie in the Finsen light bath for from ten to fifteen minutes. The time is then slowly increased up to the full dose two and one-half hours every alternate day.

After the first bath an erythema appears on the body and soon the patient appears as if sunburnt.

The Finsen bath is given with an electric carbon arc light.

Otto M. Rorr, M.D.

**Fraser J. S. and Watson D. Notes on Fourteen Cases of Intrinsic Cancer of the Larynx.** *Proc. Roy. Soc. Med. L. d. 94 x. St. Laryngol.*

The cases cited were seen between 1916 and 1922. Twelve of the patients were males. The ages ranged from 36 to 76 years. The oldest patient, a well more than four years after the treatment. The youngest died of recurrence.

The main symptom was hoarseness. This had been present for from one month to two years. Two patients had a papillomatous variety of growth. One showed hyperkeratosis of the affected cord. Eight had a grayish pink sessile warty growth. In three this reached the anterior commissure and in one involved the extreme anterior end of the opposite cord. In two cases the growth had invaded deeply with marked ulceration. Thyrotomy was performed

first and after recurrence of the tumor laryngectomy was done. Both patients died shortly after the laryngectomy. The authors state that laryngectomy should have been done in the first place. In one case the growth was in the form of a ring around the glottis. Laryngectomy was done. The patient lived seven years and finally died of carcinoma of the cervix of the uterus.

Primary thyrotomy was done in thirteen cases and laryngectomy in one. Of the fourteen patients seven recovered and seven died. Of those who recovered one lived seven years after the operation, one six years, two four years, two two years and one one year. Of those who died one died of apoplexy, three of pulmonary complaints following operation and three of recurrence.

The authors conclude that in a well defined group of cases thyrotomy is a suitable operation for the cure of intrinsic cancer of the larynx. It is advisable to remove the larynx in all cases in which the affected cord is not freely movable.

WILLIAM B. S. A. M.D.

# SURGERY OF THE NERVOUS SYSTEM

## BRAIN AND ITS COVERINGS CRANIAL NERVES

Corbett J F The Treatment of Brain Injuries  
J La c l 1924 1 63

The author discusses in detail the mechanism of edema of the brain as associated with fracture of the skull. He concludes that in addition to an increase in the amount of intracranial fluid there must be an intracellular change of a colloid or colloid chemical nature. In treating this condition he has had little success with intravenous injections of hypertonic salt solution given to reverse the flow of the cerebrospinal fluid. Much greater benefit resulted from repeated spinal punctures with control of the fluid pressure by a mercury manometer.

Extradural hemorrhage shows clinically the usual latent period followed by an increase in the reflexes muscular twitching unconsciousness paralysis and loss of the reflexes. The increase in pressure is associated with rapidly developing papilloedema dilatation of the pupil on the side of the hemorrhage slowing of the pulse stertorous respiration and an increase in the pulse pressure. Operation is indicated as soon as the diagnosis is made.

PALL R BILLI JR MD

Frazier C H Surgery of the Pituitary Body with Illustrative Cases J c l S g 9 4 39

The author discusses eighteen consecutive cases of pituitary tumors from his record of the past three years. All of them represent what we regard as primary intrasellar lesions for the relief of which transphenoidal hypophysectomy was performed. In this group there were no operative fatalities. Three patients have died in the interval. In 75 per cent of the remaining cases the results have been satisfactory.

The associated signs of increased intracranial pressure such as general headache and vomiting are usually not present in case of pituitary lesion, and when they are in evidence one may suspect that the lesion extending beyond the confines of the sella turcica has precipitated an obstructive hydrocephalus by pressure on the third ventricle. Attempts to relieve headache by the conventional subtemporal decompression were so disappointing that efforts in this direction were abandoned.

Conclusive evidence in the diagnosis of pituitary lesions is usually revealed in the roentgenogram. According to Pancoast the dimensions of the sella should not exceed 10 by 1 mm. When they exceed these dimensions the sella may be said to be abnormal. The character of the sella is of minor importance to the surgeon chiefly because it indicates whether the condition is primary or

trasellar or primary extrasellar lesion. On this distinction will depend the choice of operation. It has been the author's rule to operate by the transphenoidal route always when the X-ray reveals the characteristic excavation of the sella. The degree to which the sphenoidal sinus is encroached on by the sellar excavation is of importance in indicating the size of the lesion and in forecasting the improvement which may follow a sellar decompression.

The ophthalmoscopic examination records optic atrophy more or less advanced in both disks in ten of sixteen cases. The perimetric tests usually show bitemporal hemianopsia.

In the treatment of pituitary lesion there are three possible controlling agencies viz glandular feeding radiation and operation. The routine use of glandular extracts in the author's cases caused no appreciable effect on the lesion. Some cases of pituitary lesions all respond favorably to irradiation. For the operative treatment of primary intrasellar lesion the author strongly advocates the transphenoidal route. The purpose of operation upon the pituitary is to relieve the effects of pressure. Occasionally surgical treatment may be followed also by improvement in one of the other manifestations of pituitary dysfunction. In 35 per cent of the author's cases there was striking improvement in vision and in 3 per cent moderate but sustained improvement. In 27 per cent the condition remained unchanged or was aggravated. These figures correspond closely to those of Cushing.

LOYAL F DAVIS MD

Adams A W Ott W O and Crawford A S A Study of Ventriculography R d l g 19 4 6

A careful analytical study was made of a series of cases in which ventriculography was employed between July 1920 and December 1923 in an attempt to determine whether or not it had been employed as often as it should have been and whether or not its use was justified by the results obtained. Their results are reported.

Of 53 cases which were diagnosed definitely or tentatively as brain tumors in the Mayo Clinic 206 were operated upon. Of the remaining 326 operations refused in about 50 per cent and about 50 per cent were held under observation because surgery was not indicated at that time. Ventriculography was used only when there were definite signs of brain tumor and the growth could not be localized by the other diagnostic measures. In these cases ventriculography was found of distinct value. It made possible the earlier detection of operable cases and eliminated those which were inoperable. In a review of the surgical cases it was found that

the roentgenograms of the head without ventriculography gave evidence of localization in about 8 per cent of the cases of brain tumor.

The technique of the procedure is briefly as follows:

The patient lies on his back with his head well elevated. Under local anesthesia a trephine opening is made from 3 to 4 cm. to the right of the median line and 3 cm. above the lateral sinus. A trocar and cannula are then inserted into the brain through planes cutting the center of the orbit and the tip of the ear. Usually they enter the vestibule of the posterior horn of the lateral ventricle. By means of the trocar which is connected by a rubber catheter to a freely moving graduated glass syringe fluid is removed by the fractional method that is 10 ccm. are removed at a time and replaced by an equal amount of air until the right ventricle is empty. The head of the table is then lowered to remove the fluid from the anterior horn. If considerable fluid continues to collect the inference is drawn that it is coming from the opposite side. If no fluid appears after the head is turned to the right a second trephine opening is made over the posterior horn of the left lateral ventricle and the same procedure is followed. The wounds are closed with silk suture and covered with collodion dressing.

Roentgenograms are then taken in the four directions while the patient is still on the operating table. The first one is usually made with the left side of the head down on the plate the second with the right side down the third with the occiput down and the fourth with the forehead down. A special head rest is used which clamps the head in the proper position. Care is taken to rotate the head slowly between exposures in order to insure the proper localization of the air in the ventricles. Occasionally a fifth plate is made with the head very much lowered and the plate placed at the side the object being to force the air into the aqueduct of the fourth ventricle. The air is not removed from the ventricles unless there are definite signs of increased intracranial pressure.

Interpretation of the ventriculograms requires considerable study. Often the combined evidence of all of the plates is necessary for the diagnosis. The seventy-two cases are divided into two groups: (1) those with the symptoms of increased intracranial pressure without localization and (2) those with symptoms of slightly increased intracranial pressure. In Group 1 (forty-seven cases) 60 per cent of the ventriculograms were positive. In Group 2 (twenty-five cases) 64 per cent were positive. In twenty-four of the thirty cases in which exploration was done positive signs of a ventricular lesion were verified they were not verified in four and were misleading in two. In the remaining cases exploration was not attempted because the ventricular findings or clinical symptoms indicated inoperable lesions or did not indicate surgery.

Of the thirty-three cases in which exploration was performed removal of the lesion was effected in five

partial removal in five and a cure in seven. In five there were gliomata either degenerating or extending to the surface these were treated by decompression and X-ray therapy. There were six deaths within thirty hours after ventriculography and two deaths much later due probably to the tumor rather than the surgical procedure. These cases are reported briefly.

The results in this series of cases demonstrate that ventriculography aids in the localization of tumors of the cerebrum only when the lumen of the ventricles is sufficiently encroached upon and does nothing more than indicate obstruction below the aqueduct or tentorium cerebelli. In some cases there are technical reasons why sufficient air cannot be injected to give a clear X-ray picture. In cases of marked internal hydrocephalus the removal of too much fluid is associated with the danger of injuring the choroid plexus and causing hemorrhage into the ventricles and it is not safe to use ventriculography in localizing brain abscess.

It is probable that ventriculography should be employed more frequently than heretofore. It is hazardous mainly in cases of deep lesions which are very serious risks. But use of its attendant dangers should be employed only as an adjunct to and after other methods of diagnosis have been exhausted. In arriving at a diagnosis the surgeon should consider the clinical history the neurological findings and the surgical findings while making the ventriculograms and should analyze the ventriculogram with great care.

#### Hildebrand O. A New Operative Method for the Treatment of Chronic Internal Hydrocephalus in Children (English translation from the German *Handbuch der Hydrocephalus* by Hildebrandt, A. H. F. H. K. 1913)

The answer to the question as to whether hydrocephalus is the result of hypersecretion with unchanged outflow or of a normal secretion with obstruction of the outflow is still not entirely clear. Up to the present time hypersecretion of the choroid plexus in chronic idiopathic hydrocephalus has not been established. On the other hand, research has shown that in many cases of hydrocephalus there is a stenosis or stricture at many points along the course of the outlet canal from the lateral ventricles to the subarachnoid space. A third possible cause of hydrocephalus may be congestion in the venous circulation.

Regardless of the cause of the condition the surgeon has a choice of two procedures: (1) reduction of the secretion of spinal fluid (2) removal or circumvention of the obstruction to the outflow. Reduction of the choroid plexus was first attempted by the author later by Williams and recently by Laeven and Dandy. In every instance the attempt was unsuccessful. Repeated puncture of the ventricle seldom attained the desired end. Circumvention of the obstruction was attempted by means of Mikulicz drainage of the subcutaneous tissue with

healed in metal tubes and by restoring the communication between the ventricles and the subarachnoid space by puncture of the corpus callosum according to the von Gramann method. In the cases of very weak children Heile's method of conducting the fluid of the brain into the abdominal cavity is too severe.

As no method gave satisfactory results Hildebrand worked out a plan in connection with his operative method for the correction of *Tumors* in atrophy of the optic nerve. In this procedure the ventricle is opened from the orbit and after the removal of a portion of the roof of the orbit and the dura a permanent communication is established between the ventricle and the subarachnoid space and the fatty tissue of the orbit. An incision is made along the supra-orbital ridge the soft parts being divided down to the bone. Subperiosteal detachment of the soft parts from the bone of the orbital roof is then done from 1 to 2 cm from the supra-orbital ridge and a window 1 or 2 sq cm is cut out from the orbital roof 1 or 2 cm distant from the orbital margin. The exposed dura is slit a piece is cut away from the border of the bone defect and the lateral ventricle is punctured from below with the Gramann puncture tube. The hole in the brain is then enlarged by to and from movement of the tube. After emptying of the lateral ventricles the skin wound is closed. The child is then placed in an inclined bed so that the opening in the brain will be the lowest point. Later the same operation is carried out on the other side.

The effect on a child subjected to the operation on one side was extraordinary. Formerly there had been a continuous increase in the circumference of the skull vomiting and somnolence in spite of repeated puncture of the ventricle. After the operation the circumference of the skull progressively decreased with retraction of the fontanelles and improvement of the mentality. The operation was performed on the other side two months later and was again followed by a marked reduction in the circumference of the skull retraction of the fontanelles and improvement in the mental condition. After several weeks there was another relapse and operation was repeated on the first side. The dura which had not been removed was found adherent to the orbital connective tissue and as the forehead excised. Renewed puncture of the lateral ventricle was done and the skin wound closed. To date there has been no further relapse.

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Bagley C J Brain Abscess with Pathological Observations. *Surg Gynecol Obstet* 94 xx

The avenues of infection in brain abscess are arranged in four groups.

**Group 1.** An extracranial extension of the primary focus. The dura is the most important barrier in the extension of an infection of the tympanic cavity and accessory nasal sinuses. The first stage is osteomyelitis of the wall of the cavity after this the dura proliferates. Such extradural extension of the pri-

mary focus may be accompanied by protrusion of the distended dura into the cranial cavity direct extension from the extradural abscess or invasion from the extradural abscess along the blood vessels.

**Group 2.** Secondary infection of the brain along the blood vessels without an extradural link. The superior petrosal sinus which receives veins from the tympanic cavity and cortex of the temporal lobe is an indirect link. The lateral sinus may be a link between the mastoid cavity and the cerebellum. The pathogenesis is obscure but probably a phlebitis with retardation of the blood current forces in infected maternal blood.

**Group 3.** A penetrating brain injury with infection by a foreign body which is deep and without a stalk. In some cases the foreign body may be encapsulated with complete healing in others a discharging sinus extends from the foreign body in the brain substance to the skull surface in others the tract remains open but the formation of an excess amount of pus results in a brain abscess and in still others the tract heals but an abscess forms at the site of the foreign body.

**Group 4.** Abscess superficial and open secondary to direct laceration and infection of brain tissue. Such abscesses may develop in neglected cases of compound skull fracture with a surface opening large enough to permit free drainage. A localized cephalitis may follow as the result of the proliferation of the neighboring mesoblastic tissue and the organized dura may shut off the foreign material from the brain the resulting abscess being essentially extradural.

The most important factor determining the outcome of a brain abscess is the abscess wall. This depends upon the type of the infecting organism and the resistance of the infected tissue. The proliferation of the tissue is either fibrous mesoblastic or glial epiblastic. The former is the more effective but does not occur in the deep substance of the brain.

There are four types of abscess wall the dense fibrous mesoblastic tissue wall the fairly firm wall containing some fibrous proliferation from neighboring mesoblastic tissue a wall of varying thickness the result of glial proliferation and a wall showing no evidence of a protective reaction.

PAUL R. BILLING LEA, M.D.

Grant F C Localization of Brain Tumors by Determination of the Electrical Resistance of the Growth. *J. Neurology* 1913 16: 269

The electrical resistance of brain tumors is determined by means of an apparatus consisting of a Wheatstone bridge a Kohlrausch slide four dry cells in series an audio oscillator of 1000 frequency a low resistance telephone receiver and a rubber and platinum needle with two conduction points one at the tip and the other a platinum band 1 cm back of the tip.

In tests of the normal brain in a series of ten do it was found that the motor cortex frontal lobe and occipital lobe showed no appreciable difference in

resistance. As observed by Meyer and Schluter the cerebellum was more resistant than the cerebrum and the spinal cord more than either. The author did not have the opportunity to compare the cerebellum with the cerebellum in clinical cases.

Gliomata and sarcomata showed from one third to one half the normal tissue resistance and endotheliomata a definitely higher or lower resistance.

The procedure was found of special value in cases in which exploration was warranted by fairly definite neurological signs but apparently normal cortex presented. By the use of the apparatus described it is possible to locate a subcortical tumor without the risk attendant upon ventriculography. In the author's opinion the electrical resistance of tissues may be estimated by the simple apparatus described with sufficient accuracy for clinical work.

KURT H. HOFCK, M.D.

McKenzie, K. G. and Sosman, M. G. The Roentgenological Diagnosis of Cranio-pharyngeal Pouch Tumors. *J. R. E. G.* 1941, 71.

Cranio-pharyngeal pouch tumors are frequently revealed by the appearance of calcareous shadows. In a roentgenological study of thirty-five verified cases of such tumors the characteristic calcification was noted in 71 per cent. This was delicate and spongy in appearance and irregular in format. Unlike that in intracranial aneurisms and dermoid it did not in any case outline a section of the cyst wall being nodular in character and occurring chiefly in the solid part of the tumor. As shown on the film it may vary in size from a few faint specks to a mass 8 cm. in diameter. In the majority of cases the shadows are seen in the midline either directly above the sella or over the anterior clinoids. In only two cases were they located within the fossa.

The outline of the sella was abnormal in twenty-seven cases (76 per cent). Usually the abnormality consisted in enlargement of the fossa with irregularity and depression of the floor. In twenty-six cases there was destruction. In many this was limited to the posterior clinoids but varied in degree. Generalized pressure evidence by involuntarily atrophy was present in a ventral cases and extremely marked in four. Five of the cases studied were frankly negative and five were doubtful.

ADOLPH HARTMAN, M.D.

Gordon, A. The Diagnosis of Occlusion of the Posterior Inferior Cerebellar Artery. *M. J.* 1941, 46.

The author reports a case of occlusion of the posterior cerebellar artery and analyzes the symptoms on the basis of the relations of the artery to the adjoining nervous structures.

The posterior cerebellar artery as a rule supplies the inferior surface of the cerebellum, the superior surface (in part by its anastomoses) and the lateral part of the medulla.

In the case reported the onset of the condition was sudden. Motor disturbances in the arm and shoulder

in the form of ataxia and asynergia occurred on the side of the lesion but were transient. Sensory disturbances of the syringomyelic type were present over the lower two divisions of the trigeminal, the neck, the upper thorax and the arm on the opposite side. Symptoms referable to the glossopharyngeal and vagus nerves such as difficulty in swallowing, impairment of sensation and paralysis of the soft palate and of the pharynx were also noted. On the side of the lesion there was facial weakness.

The lesion embraces the nucleus ambiguus, the nucleus of the solitary bundle, the nucleus ambiguus, the nucleus of the descending root of the trigeminal and Goll's tract.

In the author's case prolonged ataxia, difficulty in speech and marked sympathetic involvement were lacking. According to Waller improvement in the difficulty in swallowing would exclude the diagnosis of occlusion of the vertebral artery.

WILLIAM P. VAN WAGEN, M.D.

Aimes, A. and Guibal, A. Obervations and Autopsy Findings in a Case of Occipital Meningocele. (*Observations et Autopsie d'un Ménégéle occipital*). *Rev. de Ch. P.* 1941, 57.

The authors report a case of head sized occipital meningocele in an otherwise apparently normal intelligent looking child without cerebral symptoms. The infant's delivery (cephalic presentation) was long and painful. The tumor appeared suddenly after the delivery of the head and the difficulty of its engagement led to laceration of its surface. The tumor was attached to the occipital region by a short pedicle 5 cm. in diameter and was covered with skin with scattered hairs over the surface and thick set hairs around the base. It was not translucent but palpation suggested fluid contents under moderate tension. Reduction was impossible.

Because of the size of the tumor and the fragility of the large irregular scar on the posterosuperior surface, condyloidectomy operation was advised. The longitudinal incision included excision of the scar. During subcutaneous enucleation from the cutaneous capsule the sac ruptured and from 800 to 900 gm. of clear water escaped. The cavity had a smooth continuous gray lining and communicated anteriorly through the occipital bone with the interior of the skull. About the outlet was floating finger-like folds. A radical cure of the meningocele was effected by closure of the pedicle by a purse string suture at the occipital orifice. The linear laceration was sutured.

The infant's condition was favorable until the fourth day after operation. Fever and prostration with vomiting then developed and died on the sixth day.

Autopsy revealed the occipital bone at the level of the internal occipital protuberance a circular elongate opening measuring 11 by 9 mm. The bone edges were blunt, regular and symmetrical.

other malformation was found. Histological examination showed the wall of the tumor to consist of skin, dermis and meninges, no recognizable nervous elements were seen. The finger like folds near the outlet were meningeal tissue.

The authors regard the tumor as a pure meningeal of a very rare type. **WALTER C. BURKE, M.D.**

### SPINAL CORD AND ITS COVERINGS

**Hurst, A. F.** Addison's (Pernicious) Anæmia and Subacute Combined Degeneration of the Spinal Cord. *Bull. M. J.* 1924, 1, 93.

The term Addison's anæmia is used by Hurst because the first characteristic description of pernicious anæmia was written by Thomas Addison in 1849. The adjective pernicious is avoided because it is misleading and has a depressing significance to the patient.

An invariably associated finding in the condition under discussion is gastric achylia. The color index is frequently high, but the blood picture may be easily confused with that of secondary anæmia. Hyperbilirubinæmia determined by van der Bergh's reaction is nearly always present and a curve of the diameters of the red blood corpuscles plotted by Prince Jones' method is characteristic, showing a wide variation and a mean diameter greater than the normal, which are present throughout remissions and exacerbations of the condition.

Subacute combined sclerosis of the spinal cord in varying degree is found on neurological examination and at autopsy in from 75 to 80 per cent of the cases. Fairly frequently cases of combined sclerosis develop without findings of anæmia, but this feature almost invariably becomes apparent later, sometimes within two weeks of death. Achylia, however, is a constantly associated finding in combined sclerosis. The incidence of achylia in normal persons was found to be 4 per cent in a series of persons with various medical diseases, 15 per cent in persons with tabes dorsalis, 11 per cent and in persons with carcinoma of the stomach, 46 per cent.

The atrophic glossitis, which is so frequently an important factor in the diagnosis, and the finding of focal infection lead to the supposition that the cause is an infection. This was borne out by the author's experiments in culturing the duodenal content and running a control series in other achylic conditions and normal and infectious cases in which ferri citri retained. The hæmolytic streptococcus was recovered from only 10 per cent of the fifty experimental cases but was found in all ten cases of Addison's anæmia and in five cases of subacute combined sclerosis. This important demonstration leads to the logical conclusion—supported also by the report of several cases of the family occurrence of the two maladies—that the intestinal infection occurs in congenitally achylic persons because of the absence of the germicidal agent in the stomach. It suggests also that intestinal infection varying proportions the property of the hæmolytic

and that of the other neurotoxic. Remissions are explained on the basis of partial or complete cessation of the toxæmia rather than on the basis of megaloblastic regenerative activity of the bone marrow, since during remissions the marrow reverts to a normal appearance, as Zadek has shown by biopsy on the tibia in various phases of the disease.

With regard to the treatment of Addison's anæmia and subacute combined sclerosis, mention is made of arsenic, charcoal, pepsin, lactic acid, milk, direct blood transfusion and splenectomy, but special stress is laid on the use of at least 6 gm. daily of properly diluted hydrochloric acid and an autogenous vaccine prepared from the streptococcus isolated from the duodenal contents or from the teeth or tonsil. The author has seen considerable improvement result from this treatment, even partial return of supposedly lost nervous function.

**KURT H. HOLCK, M.D.**

**Mixter, W. J.** The Importance of a Complete Examination of the Cerebrospinal Fluid in Surgery of the Spinal Cord. *J. A. M. A.* 1923, 1xx, 66.

Besides the routine neurological examination in suspected cases of cord tumor and other conditions causing chronic spinal cord compression, emphasis is placed on three preoperative procedures:

1. The determination of localized signs in the spine, such as pain on pressure, slight kyphosis, scoliosis, local rigidity and pain on coughing and sneezing.

Stereoscopic examination of the spine after a tentative diagnosis of the level of the lesion has been made.

3. Complete examination of the spinal fluid.

If lumbar puncture does not reveal evidence of spinal block or if on the other hand definite findings of complete block are obtained, cistern puncture is not indicated. This should be resorted to only in questionable cases of incomplete block, in these comparative manometric and quantitative protein determinations will determine the diagnosis. In cases of suspected cord tumor, high or low lumbar puncture will reveal the condition. Lesions most closely simulating cord tumor are multiple sclerosis, localized degenerative myelitis and combined sclerosis of pernicious anæmia.

Double puncture, as done in forty-two of eighty-one cases of suspected cord tumor. At operation a lesion was found in thirty-one in which a positive diagnosis had been made and in one in which the diagnosis was negative. Of ten cases in which no lesion was found, eight had a negative diagnosis and one a positive diagnosis. **KURT H. HOLCK, M.D.**

**Lindberg, L.** Experiment with Ventral Plaster Molds in Cases of Laminectomy. (*Les Technique de G. P. Bettina, L. M. K. M.*) *Acta Chir. Scand.* 1923, 1, 386.

The author advocates the use of a ventral plaster mold after laminectomy to prevent injury or irrita-



tion in transportation. The mold extends from the mid thigh region to above the head and has a window for the face and umbilical region.

WILLIAM P. VAN HAGEN, M.D.

### PERIPHERAL NERVES

Miller E. M. Late Ulnar Nerve Palsy. *Surg. Gynec. & Obst.* 1924, x, 1, 37.

Late ulnar nerve palsy practically always follows an elbow fracture in early childhood. The fracture begins laterally below the epicondyle and passes obliquely downward and inward into the joint causing complete separation of the capitellum. The latter is displaced laterally and forward and is twisted outward. No union results and as the growth of the humerus on the lateral side is thus interfered with a cubitus valgus develops. This increasing deformity causes the olecranon to impinge against the medial condyle, the ulnar groove becoming shallow and the nerve displaced from its bed where it becomes subjected to stretching and slight trauma. In the majority of cases the condition is noticed between the twentieth and thirtieth year after the fracture.

One of four methods of treatment may be followed:

1. Correction of the deformity by a cuneiform osteotomy of the humerus.

2. Simple liberation of the nerve from its bed.

3. Liberation of the nerve and its replacement in a new groove made by the removal of a wedge shaped piece of bone and lined with an aponeurotic fascial flap.

4. Nerve transplantation to the flexor side of the elbow.

The first and last methods are the procedures of choice. The author reports ten cases. He concludes that such fractures should be operated upon in childhood if it is impossible to effect reduction by manipulation.

PAUL R. BILLINGSLEY, M.D.

Chiasseroni A. Experimental and Clinical Contributions on Nerve Transplantation. *Chirurgia, Peimantale e Contributiolo di Chirurgia e Anestesiologia* (Rome) 1913, x, 489.

The author gives his views on nerve transplantation and reports the case of a soldier who received a severe injury in the antecubital fossa with severance of the median nerve. At operation, one year later, the scar was exposed and excised and the defect bridged with an 8 cm. section of nerve which had been preserved in alcohol. The graft was sutured with Carrel silk and wrapped with tissue to prevent scar formation. The wound healed by primary union and the patient left the hospital at the end of one month. Three years later there was only slight movement in the hand but improvement in sensation was marked. There were no trophic disturbances.

Chiasseroni's opinion on that it is not necessary to employ foreign substances such as fat strips of fascia or pressed artery with nerve trans-

plantation and anastomosis. If the muscular bed in which the nerve juncture lies is free from blood enveloping substances are unnecessary.

From a series of thirty-one experiments in nerve transplantation on dogs the author draws the following conclusions:

1. Transplants of sections of a nerve trunk preserved in alcohol take without causing reaction.

2. The transplanted section becomes innervated by the nerve fibers of the proximal end but the maximum down growth of fibers requires at least several months.

3. After union has occurred there is definite improvement in the motor function and the transplanted portion responds to electrical stimulation.

4. The transplants may be kept in 60 to 70 per cent alcohol but not for too long a time (no definite time is specified).

5. The transplants should be washed in warm water before use.

6. There must be complete hemostasis in the area which is to serve as the bed of the transplant.

7. The transplanted nerve bundle must not be less thick than the injured nerve.

8. The nerve sheath should be sutured with Carrel silk.

9. The use of foreign substances such as fat fascia and sections of blood vessel is unnecessary.

10. If improvement has not occurred by the end of the first month the transplant should be reexamined *in situ*. If adhesions are extensive the use of artery wall tissue is recommended.

JAMES V. RICCI, M.D.

Ryle N. D. A New Operative Procedure in the Treatment of Spastic Paralysis and Its Experimental Basis. *Med. J. Australia* 1914, 77.

The most important factor in the production of the disabilities and deformities of spastic paralysis is muscular rigidity. The author set himself the task of determining (1) the function of the non-medullated sympathetic fibers which supply voluntary muscle, and (2) whether that function has anything to do with the muscular rigidity of spastic paralysis.

The abdominal sympathetic trunk was removed upon one side in an animal which later was subjected to hemisection of the cord on the corresponding side. Although not all of the experiments were completely successful there was a definite tendency toward a flaccid condition of the affected extremity. Simple removal of the trunk upon one side did not interfere with the animal's ability to control the corresponding lower limb but when the animal was placed on its back it was unable to maintain the limb in an extended position. When decerebration was produced an lateral dissection of the abdominal sympathetic chain prevented the onset of rigidity.

These experiments were applied to two cases of spastic paralysis in man. In the first case a gunshot wound had injured the cerebral cortex as follows:

produce a right spastic hemiplegia and spastic paralysis of the left leg and foot. The right abdominal sympathetic trunk was exposed through a paravertebral approach the white ramus from the second lumbar nerve was divided and the gray rami to the second, third and fourth lumbar nerves were avulsed. The fourth lumbar ganglion was then identified and the trunk divided immediately below it. Fifty-four days after the operation the patient was able to relax the formerly spastic right limb normally when walking and there was no sign of abnormal tone in the muscles of the right lower limb.

The second patient had had a right spastic hemiplegia for fourteen years. The cause of the condition was not given. The gray rami to the roots of the brachial plexus were avulsed. Fourteen days after the operation remarkable improvement in voluntary control was noted.

The most obvious change which followed these operations was the diminution of rigidity with immediate return of muscular control. Immediately after the operation there was a motor disturbance but this quickly disappeared.

Foerster's operation deals with afferent fibers and the results obtained may be due to interference with afferent sympathetic fibers. Since the entire afferent supply cannot be destroyed the spasticity tends to recur. Stoefel's procedure attacks the peripheral nerve with the purpose of reducing the amount of nerve supply to contracted groups. Sympathetic ramisectomy involves the destruction of afferent fiber and thus prevents the discharge of impulses from the central nervous system into the affected muscles.

LOYAL E. D. I. M.D.

#### Platt II and Bristow W. R. The Remote Results of Operations for Injuries of the Peripheral Nerves. *B. J. S. S. 94: 1-535*

Before proceeding with the description of the results obtained from peripheral nerve operation the authors review certain fundamental considerations which have a direct bearing on the study of the various factors which determine the success or failure of operative repair.

*Percentage of cure.* In the greater number of cases of nerve injury the interval long to the primary class and the extensive destruction of the immediate loss of anatomical continuity. To this primary destructive effect is added the influence of wound infection. Further destruction of nerve tissue takes place in the course of the acute inflammatory reaction which follows. With the onset of healing and the production of scar tissue a still further obliteration of nerve continuity occurs. When the scar tissue has become fully matured it has built up a barrier which effectively prevents the growing axon of the proximal stump from reaching the distal stump.

A more insidious type of damage occurs during the time the nerve lies beneath the inflammatory exudate. Bacteria and their toxins pass into the interior of the nerve trunk and cause local

distance above the limits of the initial lesion. The result is the development of an interstitial neuritis and the final histological picture shows a fibrosis involving the connective tissue framework between the nerve bundles and around the individual nerve fibers. Such an extensive interstitial neuritis exerts an inhibitory influence on the regenerative process. There are three main types of nerve injuries: (1) complete division with a gap; (2) complete division without a gap, the nerve trunk retaining a pseudo-continuity; (3) local alterations in the contour, size and consistency of the nerve trunk which is apparently intact.

In addition to local changes a nerve injury produces distant effects. When the continuity of the axis cylinder is interrupted and particularly when the injury is extensive or the lesion is situated high up on the proximal course of the nerve, early retrogressive changes take place in the central spinal cord cell. More peripheral distant effects include simple disuse atrophy which is most evident in the muscle bellies. Trophic changes dependent upon irritation of vasomotor and sensory axons which still retain their integrity combine to complicate the pathological picture. Particularly in gunshot wound fibrotic changes develop in the tendon sheaths and joint capsules in regions remote from the point of injury.

*Operative technique.* The accepted standardized procedures in the operative repair of peripheral nerve injuries by direct end to end suture may be classified as follows:

1. Wide anatomical exposure with free mobilization of the proximal and distal parts of the nerve trunk.
2. The additional relaxation of the nerve afforded by changing the posture of the limb.
3. The stripping up of motor branches arising proximal to the lesion from within the nerve sheath or when necessary the deliberate sacrifice of one or more branches.
4. The displacement of the nerve to a new bed to shorten its course.
5. The two stage operation in which after full exposure the untruncated central and distal stumps are drawn close together by stout sutures and the wound is closed. Subsequently it may be possible to freshen the ends and to do a direct suture.
6. Bone shortening. This is indicated only very rarely.

At the line of suture the nerve ends should be in bare contact under slight tension without crowding or eversion of the fasciculi. Sheath sutures alone are desirable. A stay suture passed through the entire thickness of the nerve trunk should be avoided. Whenever possible the nerve should be placed in a bed of healthy muscle tissue. If this cannot be done a small sheet of fascia placed beneath the nerve will be found the best protection.

In addition to end to end suture neurolysis and the small group of operations best described by the term bridging there are other operative pro-

cedures designed to restore conduction. Besides the attempt to restore conduction within the nerve trunk operations may be undertaken for the relief of pain and other irritative phenomena and to restore function in cases of irreparable lesions and in complete recovery.

The greater length of time after the receipt of the injury that a good result may be hoped for from operation is three years. The harmful effects of long delay depend on the development of peripheral and central retrogressive changes. The permanent degenerative changes which occur in the muscle bellies after prolonged denervation render these structures less capable of assuming function even though neurotization may be established at a later date. However if they are kept in the best possible condition by heat massage and electrical stimulation the outlook is improved.

In many cases of nerve injury belonging to the category of compression lesions the surgical removal of the compressing agent (neurolysis) is rapidly followed by the reappearance of both conductivity and function. This means that the loss of conduction has not been associated with degeneration of the axile cylinders. When the compression has been present for a considerable time the restoration of conduction depends on the occurrence of regeneration alone and the obstacles to full spontaneous repair are situated in the interior of the nerve trunk. Therefore when the cause of the trauma is removed at a late stage there is no certainty that complete restoration of function will follow.

Bridging operations include neuroplasty by means of a flap turned down from the proximal to the distal stump tubularization in which some form of conducting channel is inserted and nerve grafting. According to many reports the literature nerve grafting generally fails. The only successful results of nerve crossing which may be classed as a bridging operation appear to be limited to operations for injuries of the supraclavicular trunks of the brachial plexus and of the facial nerve.

*Clinical considerations.* Several clinical facts should be kept in mind in estimating the success or failure of nerve suture operations. On the motor side substitute muscle movements give rise to error. For example following complete division of the median and ulnar nerves in the upper arm flexion of the wrist may be carried out by the action of the extensor carpi metacarpi pollicis muscle which is innervated by the radial nerve. On the sensory side variations occur in the loss of sensibility particularly as estimated by the appreciation of the pain of pinprick.

All statistics show that recovery is most complete and occurs most frequently in the radial nerve. Almost perfect restoration of function in a considerable number of cases has been reported for example it was obtained in twenty of thirty-seven cases reported by Stipf.

In the ulnar nerve results have been physically logically imperfect but not necessarily poor con-

sciously. Similarly the end results in the case of the median nerve have been uniformly disappointing chiefly because of the extreme functional disability consequent on the inadequate recovery of sensibility. The neurological and economic results in the case of the sciatic nerve have been consistently poor. The percentage of complete failures in repair of the external popliteal nerve has been high but in a number of cases very complete recovery has resulted.

Neurolysis resection and suture the intraneural injection of alcohol posterior root sections and penarterial sympathectomy have been employed to relieve the pain and other irritative phenomena due to peripheral nerve lesions. Clinically it is of the greatest importance to differentiate between the pain of true causalgia and that evoked by stimulation of a recovering nerve area. The operation of Leriche (penarterial sympathectomy) has gained few adherents in England.

It must be remembered that war injuries are almost always complicated by sepsis while injuries in civil life have a vastly better prognosis. The experience gained in nerve surgery in cases of war injury has led to improvement in surgical technique.

LOYAL L. DAVIS M.D.

## MISCELLANEOUS

Wilson S. A. K. Trauma in Etiology of Organic and Functional Nervous Disease. *J. Am. M. Ass.* 9:317x.

To say that trauma is a major etiologic factor in nervous diseases is exaggeration but most writers mention it as at least a predisposing cause and cite cases of their own and from the literature to substantiate their contention. In present day economic and industrial development this subject has gained increasing importance because industrial insurance common-carrier litigation and air risk insurance have brought it into the foreground.

As a basis for refuting the rôle of trauma in nervous disease the author quotes statistics from casualties in the recent war. These show first that organic nervous disease developed in only 1 of the large number of cases of possible injury of the central nervous system and second that when it did develop the history showed the influence of the history predisposition or the possibility of infection.

The organic malady occurring most often in this article are disseminated sclerosis cerebral tumors neurosyphilis and poliomyelitis. The more common types of lesions and their psychosomatic presentation only briefly.

The remarkable increase in reports of functional disease as a sequel of trauma is exemplified in the large number of compensation claims following railroad accidents. Whether conscious or unconscious the motive—compensation—is shown to be the determining factor in the diagnosis.

K. H. H. Hotchkiss M.D.

Auerbach S. Neurological and Surgical Observations on Neurosurgery (Neurologisches und Chirurgisches Neurochirurgie) *Deutsche Zeitschrift für Neurologie* 1923 LXXVII 303

Lumbar puncture is apparently a harmless procedure but should be resorted to for diagnostic or therapeutic purposes only when it is distinctly indicated since besides its disagreeable after effects it has sometimes been followed by death.

Cranial or ventricular puncture may be used for diagnostic purposes when roentgen examination has failed to show the location of the lesion. With regard to brain puncture the author's advice is first to make a small incision in the soft parts under local anesthesia and then by means of Doyen's instruments to trephine an opening about 0.5 cm. in diameter in order to be certain to avoid a sinus or dilated vein after exposure of the dura.

Decompressive trephination should be undertaken only when it is impossible to locate a tumor by topical diagnosis or brain puncture and when trephination will relieve symptoms due to intracranial pressure. The author discusses also two other procedures for the relief of pressure: Bramann's callosal puncture and Schmiele's suboccipital puncture. A disadvantage of the callosal puncture is the

gap made in the corpus callosum the largest and most important bundle of association fibers between the two hemispheres. The suboccipital puncture is more conservative as it leaves the bone intact and does not injure the brain. In the author's opinion the only indication for either of these methods is an increase in the intracranial pressure caused by the accumulation of fluid. Callosal puncture he regards as indicated in hydrocephalus of the lateral ventricles and suboccipital puncture in cases of accumulation of fluid in the fourth ventricle.

For tumors of the cerebellar pontile angle hemi-craniotomy as recommended by Berchardt is the most promising procedure. In all operations on the skull in the spinal column the least damage is inflicted by the use of the hand trephine and Dahlgren's forceps. The hammer and chisel should not be employed.

The author believes that because of the danger of respiratory paralysis in operations on the skull or spinal column the patient should be placed on his side.

In cases of very severe trigeminal neuralgia Auerbach prefers resection of the base of the skull and excision of the gasserian ganglion to the injection of alcohol.

HELLER (7)

# SURGERY OF THE CHEST

## CHEST WALL AND BREAST

Battle W H The Clinical Diagnosis of Carcinoma of the Breast *Lancet* 1924 cc 1

To wait for the textbook signs of carcinoma of the breast is as dangerous as to wait for loss of liver dullness in cases of perforated gastric ulcer

Central hardness in a breast tumor is the primary and early attribute of carcinoma. It is simulated in this respect only by osteochondrosarcoma, chondrosarcoma, and sclerosing tuberculous mastitis. Elasticity, lacking. Irregularity of outline and nodulation of the surface are other characteristics. On section cartilaginous resistance to the knife, a hard edge and cupping of the surface are noted. Secondary characteristics of breast carcinoma are thinning of the overlying tissues, alteration in the outline and size of the affected breast, retraction or elevation of the nipple, narrowing of the areola on the side nearest the tumor, dimpling of the skin, ulceration and the lack of mobility of the tumor in relation to the rest of the breast tissue.

Hardness rather than a slight increase in size is a criterion of lymph node involvement.

Conditions to be differentiated from early carcinoma are cysts, fibroadenomata, and patches of chronic inflammation. In chronic inflammation the skin lymph nodes or pectoral fascia are not involved and tenderness is more apt to predominate.

Tuberculous mastitis with sinuses, ulceration, thinning of the skin and pigmentation can usually be differentiated from carcinoma.

Actinomycosis may be diagnosed on the basis of the characteristic granules from the abscess.

Gummata of the breast occur both as solitary and multiple tumors with or without adjoining healthy breast tissue.

The author agrees with Handley and Cheatle that Paget's disease is carcinoma and is primary in the breast epithelium.

Acute mammary carcinoma presents the picture of an enlarged projecting fixed tumor with the skin over it dull red, hot, oedematous and fixed.

WILLIAM P. BAILEY, M.D.

## TRACHEA LUNGS AND PLEURA

Lambert A V S and Miller J A Abscess of the Lung *Am Surg* 9:5 vii 446

Sixty cases are reported, forty six of which were acute. Emphasis is placed upon the need for greater accuracy in differentiating between acute pulmonary abscess, chronic pulmonary abscess, and empyema. It is generally believed that in most instances pulmonary abscess follows pneumonia in which necrosis and liquefaction supervene. In

twenty-two of the authors' cases the abscess of the lung was primary.

The interstitial tissue of the alveoli being infected there is a prompt breaking down of the inflammatory products without any stage of exudate pneumonia. The history in such cases is of a not very acute prodromal period of usually less than a week.

Bacteriological studies of ten cases in which examinations were made of pus obtained from the abscess at the time of operation revealed the uniform presence of anaerobic bacteria. The authors attempted to produce lung lesion in monkeys by the intratracheal injection of these anaerobic organisms but the results were negative.

These cases should be handled on a combined medical and surgical service. Medical management should be tried first and may be continued for a period of three or four weeks. This should consist of rest and postural drainage, the latter carried out daily as often as indicated. This method extends the indication for expectant treatment and in cases operation eventually proves necessary prepares the patient for it by relieving the acute symptoms and improving the general condition. The latter should consist of incision and drainage performed in one stage if the pleural cavity is filled off by adhesions but otherwise in two stages. Local anesthesia should be used when possible. It is important not to drain during the acute stage of an abscess.

Lobectomy while theoretically the ideal treatment carries too high a mortality.

In the group of cases reported artificial pneumothorax was used very little. However, the authors believe it should be considered and tried in the abscess centrally located and has free drainage. In cases of peripheral abscesses its use is dangerous because of the risk of rupture of the lung and secondary pyopneumothorax.

Bronchoscopy in a case which was used in only three cases gave no different results. In cases of suspected foreign body on bronchoscopic examination was of the greatest importance.

In nine cases the abscess followed pneumonia in which total illectomy, not to the traction of a tooth and none the indication of a foreign body.

The duration of the disease is of very great importance. In twenty-three cases of less than one month's duration 66.8 per cent were cured and the mortality was 2.8 per cent. In twenty-three cases of one to three months' duration 26 per cent were cured and the mortality was 39 per cent. In seven cases of more than six months' duration 17.8 per cent were cured and the mortality was 42.8 per cent.

The results in the complete series of sixty cases were as follows: cured twenty-six, improved six

unimproved eight deaths twenty (a mortality of 33.3 per cent). The medical mortality was 3.3 per cent and the surgical mortality 55.6 per cent.

S. C. LYONS, M.D.

Hedblom, C. A. Graded Extrapleural Thoracoplasty in the Treatment of Diffuse Unilateral Bronchiectasis. *Arch. S. S.* 1924, vi, 407.

In the surgical treatment of bronchiectasis the principles have been drainage, extirpation and collapse of the lung. In the earlier cases, when drainage was attempted, the mortality was very high and improvement was obtained probably only in cases of localized saccular bronchiectasis in which the procedure may be indicated. Theoretically, pneumonectomy is the ideal operation, but it has been considered suitable only in a selected group of young patients. Among such selected patients (reported cases), its mortality has been 47.8 per cent and it has given a cure in less than 20 per cent. Collapse therapy includes essentially artificial pneumothorax and extrapleural thoracoplasty. Pneumothorax collapse is a relatively safe procedure, but must be continued for months or years. Even then it has yielded only a small number of the reported cures and in a high percentage of cases empyema is a complication. A single stage extrapleural thoracoplasty has a high mortality, but many cures have been reported.

In a series of ten cases of diffuse unilateral bronchiectasis herein reported, extrapleural thoracoplasty was performed in from four to seven stages under nitrous oxide and oxygen anaesthesia followed by alcohol injection of the intercostal nerves to minimize the pain and the voluntary postoperative inhibition of coughing. Thus far there have been no deaths. Six patients have good general health. Three of these are practically free from symptoms, three raise from 30 to 60 c cm of sputum in twenty-four hours and one has symptoms and signs suggesting extension of the infection to other portions of the lung, but raise only about 60 c cm of sputum in twenty-four hours. None has shown disability or marked deformity. Three patients are still convalescent.

On the basis of comparative results, therefore, graded extrapleural thoracoplasty seems worthy of consideration in the treatment of diffuse unilateral bronchiectasis. Its relative safety makes it adaptable to most cases.

Matas, R. Remarks on the So Called Mediastinal Septum of the Dog in Relation to the Pneumothorax Problem. *Min. A. J. S.* 9, 4.

Graham, E. A. A Reconsideration of the Question of the Effects of an Open Pneumothorax. *A. J. S.* 1914, v, 345.

Snyder, J. W. Studies in Intrapleural Tension. *A. J. S.* 1924, 364.

Matas deals with the salient points in the comparative anatomy of the mediastinal septum of the

dog which have a bearing on the surgery of the mediastinum in man. He calls attention to the fact that a dog dies quickly after one of the pleurae is opened widely unless it is closed at once. The reason for this is that both lungs collapse and the respiratory function is interfered with and finally arrested.

The chief subject of contention by the various investigators is the interpretation of the mechanism by which the bilateral collapse of the lungs is produced when one pleura is opened. Matas reviews his own investigations of this subject and the results of other workers. Until the past year he was of the opinion that there was an intercommunication of the pleurae. Recently, however, he made a careful study of the pleura in dogs by a number of dissections and arrived at the conclusion that from a purely anatomical viewpoint the contention of Graham that the pleurae of the dog are separate and independent serous sacs is morphologically correct. Nevertheless, he does not believe that the mediastinal septum in the canine species is anatomically and physiologically analogous to that of man.

Matas concludes that whatever view is accepted as regards the pleura in dogs, the conclusions of experimentation on the dog without artificial aid to respiration cannot be applied in their entirety to the surgery of the thorax in man. In the animal, the mediastinal veil is merely a film, a potential partition, while in man it is a composite anatomical wall which is solidly rooted in the chest through the attachments of its pericardial supports to the diaphragm.

Graham repeats the results of the work on pneumothorax he reported with Bell in an article published in 1918. The conclusions drawn at that time are as follow:

1. Whenever a change of pressure is made in one pleural cavity there is a change in the other to almost the same extent.

2. Death in open pneumothorax is usually death from asphyxia.

3. The size of the opening is of importance and of particular importance in this connection is the vital capacity as persons with a high vital capacity can withstand larger pleural openings than those with a low vital capacity.

4. Bilateral open pneumothorax is not fatal if the openings are not too large.

5. An important factor is the marked loss of heat which usually accompanies pneumothorax.

6. In large openings there is a serious disturbance in the systemic circulation.

7. The maximum non-fatal opening of the chest wall which a particular patient can withstand, the vital capacity being known, can be expressed by a mathematical formula.

8. The presence of adhesions or of thickening of the mediastinal structures materially changes the effects of alterations of pressure in one pleural cavity.

The criticisms which have been offered by various surgeons to these conclusions are again answered by Graham. They have been directed chiefly at

the mathematical formula and the question as to the existence of a normal communication between the pleural cavities of the dog

In Graham's opinion the theoretical maximum opening which a normal person can endure is a matter of detail rather than of principle. Graham has used the formula to express an approximation. The main fact remains that in persons with a very low vital capacity a relatively small opening will be fatal.

The author has repeated a series of experiments including dissections and injections of air and fluid into one pleural cavity to discover whether they were transferred into the other. He is still of the opinion that there is no communication between the pleural cavities. A series of roentgenograms are presented which support his contention regarding unilateral pneumothorax.

The work of Snyder in which sodium bismuth solution injected into one pleural cavity of the dog as shown in both pleural cavities by the roentgen ray is merely a demonstration of the phenomenon of dialysis.

In conclusion the author states that his original observation on open pneumothorax as reported with Bell in 1918 were true in principle.

Snyder reviews the literature on the subject of pneumothorax and reports an experimental study on the pressure relations on the two sides of the thorax in the dead living dog and the human cadaver. He introduced a needle attached to a water manometer at symmetrical points into the two pleural cavities, injected air and solutions opaque to the roentgen ray into one pleural cavity, observed the fluctuations in the pressure on the two sides as recorded by the manometers and made roentgen ray plates at various stages of the experiment. The article contains simultaneous kymograph tracings of the intrapleural pressures on the two sides during the injection of measured amounts of air into one pleural cavity. From these experiments the following conclusions are drawn:

1. There is an essential difference in the mobility of the mediastinum in the dog and man.

2. A change in the intrapleural tension of one pleural cavity produces a corresponding change on the opposite side but of a different degree. The mediastinum of the dog is freely mobile and as it is also freely permeable to air and liquids, there is a very exact equalization of the intrapleural tension.

3. Unilateral pneumothorax is an impossibility in the dog since bilateral pneumothorax results because of the permeability of the mediastinum.

S. C. LEO, M.D.

**Lilienthal H. Malignant Tumor of the Lung  
Necessity for Early Operation. (A. S. 3  
1944:133)**

The majority of cases of malignant neoplasms of the lung reach the surgeon only after the disease is well advanced and there are equally hazardous secondary complications. The author therefore

urges the more general use of the roentgen ray and the bronchoscope in the diagnosis of tumors of the lung.

Lung tumors may have their origin in some part of the bronchial system usually a secondary bronchus or in the parenchyma. Those developing from the bronchi show cylindrical or cuboidal cells and those arising from the parenchyma show pavement cells. In cases of tumor of bronchial origin there is early cough because of the endobronchial irritation. The cough is at first dry, later it produces glairy sputum and subsequently pink sputum mixed with saliva. Actual hemoptysis is rare. Later the lumen becomes obstructed and bronchiectatic dilatation with a profuse purulent discharge develops. Peribronchial abscesses and suppurative pneumonitis usually follow. In cases of cancer having its origin in the alveolar portion of the lung the initial sign may be the cough due to secondary inflammation of the bronchi by direct extension. Tumors of this type may grow to a large size and occupy a large portion of the lung without causing any apparent impairment of function.

The roentgen ray examination demonstrates the parenchymatous infiltration by cancer at a very early stage in its development. The history with the X-ray findings is diagnostic enough to warrant an immediate exploratory thoracotomy. The operation is not very perilous and lobectomy under such conditions should not be accompanied by a high mortality.

The type of malignancy which originates in the bronchial wall usually begins at a considerable distance from the main bronchus. In the early stages the roentgen ray is of little help. Bronchoscopy will give a direct view of the tumor and will make it possible to remove a specimen for diagnosis.

These tumors should respond to lobectomy. The prospects for cure are excellent. In the author's opinion lobectomy for lung tumors should not carry a very high mortality as compared with lobectomy for suppurative conditions. Thoracotomy is justified by the fact that frequently operable cases are benefited by the simple opening of the thorax and in no instance has harm resulted.

S. C. LEON, M.D.

**Evans W. A. and Leucutia T. Deep Roentgen  
Therapy of Neoplastic Pulmonary Metastases  
1943: J. R. 18:1: 224-235**

Deep roentgen therapy is indicated in all cases of metastatic malignancy of the chest in which numerous metastases can be demonstrated in the rest of the body.

Although as a rule the tumor tissues show increased sensitivity to repeated radiation the normal lung tissue itself shows definitely increasing sensitivity.

In the treatment of metastatic sarcomata the morphological and histological structure of the tumor must be considered. The best results are obtained in the embryonal type of sarcoma (sarcoma

sarcoma) The fibroblastic adult type of tumors especially those which are rich in paraplasmic structures are refractory to radiation. The nearer the sarcoma to the undifferentiated embryonal type the better the chance for success and the nearer it is to the adult tumor which is rich in paraplasmic structures the less the chance for success.

In cases of metastatic carcinoma the circumscribed mediastinal metastases and the infiltrating lymphatic metastases respond well to treatment especially when the primary carcinoma is of the differentiated type. The multiple metastases of the carcinomata if localized respond well to treatment but if they are generalized the prognosis is very unfavorable.

Complications may arise incident to the treatment of metastatic processes of the lungs: (1) hemorrhage of the lungs (2) rupture of the lung with consequent pneumothorax (3) changes in the normal lung tissue.

If the dosage is not exceeded or if there is only one exposure the lung changes are temporary, consisting in infiltration but if the dosage is exceeded and the irradiation is repeated several times the change may be a permanent fibrosis of the lung.

In the treatment of malignant metastases of the lungs the necessary biological dosage of radiation should be administered to the tumor tissue itself but at the same time the normal lung tissue should be protected from injury. Therefore an attempt should be made to eradicate the disease in a single treatment. The treatment should be repeated only when this is impossible. A third or fourth irradiation should never be applied to both lung fields.

General stimulation of the protective forces of the organism is an indispensable part of deep roentgen treatment.

No statement can be made regarding the final outcome of these diseases as the authors' observations have been limited to a period of one and one-half years.

RA H B B T M M D

#### Irftler A E. A Chronic Traumatic Empyema Cavity Lined by a Skin Flap. *Surg Clin N Am* 1931; 485

The author reports a case of empyema of long standing which did not respond to rib resection and drainage. Following Beck's suggestion he lined the cavity with skin by turning up into it a large skin flap from the upper part of the abdomen. The flap extended up and to the top of the chest. Because of previous difficulty in fixing such a flap so that it would not fall away from the pleural cavity in this case by means of a long hemostatic suture into the skin and fascia at the entrance of the wound. At the end of five days when the focus was removed the flap was found to be firmly attached.

When the patient was discharged from the hospital about three weeks later he was in good physical condition. The wound is completely healed and the patient is well.

R L P B B T M M D

## ESOPHAGUS AND MEDIASTINUM

### Pfister G F. The Diagnosis of Enlarged Thymus by the X-Ray and Treatment by X-Ray or Radium. *Arch Pediatr* 1924; 41: 39

Enlarged thymus is probably more common than is generally supposed. Heavy breathing, wheezing or crowing respiration, cyanosis or an abnormal cry should direct attention to the thymus. The X-ray shows a considerable variation in the shadow cast by the thymus. The shadow occupies the upper mediastinum and extending downward overlaps the upper shadow of the aorta and heart. It extends laterally on both sides of the spine and bulges outward. Lymphadenitis of the upper mediastinum may very closely resemble a moderately enlarged thymus. However, as both lymphadenitis and thymic enlargement yield to X-ray treatment this mistake is not of great moment.

Because of the change in the size of the thymus when the child is at rest the author has made it a practice to examine the child while it is crying and struggling.

The technique of the treatment advocated is as follows. The rays are focused by means of a 3 in. cylinder directly over the thymic area with the use of a 9 in. spark gap 5 ma. at a focal distance of 30 cm. for fifteen or twenty minutes with rays filtered through 6 mm. of aluminum. The author gives this treatment once in four weeks. From three to five treatments should be sufficient.

The advantages of radium are summarized as follows:

1. Radium can be applied without any annoyance or struggle on the part of the child and therefore involves no risk to the patient of strangulation and no risk to the attendants of electrical injuries.
2. The radiation can be kept definitely in place.
3. The action of the radium is more rapid and usually one application is sufficient even in the most severe forms of the disease.
4. As radium is portable the treatment may be given at the patient's home.

The author uses ten radium needles each containing 10 mgm. of radium element in the form of a plaque. These needles are placed 1 cm. apart and upon a felt pad 1 cm. thick. The radiations are filtered through the thickness of the needle wall 0.4 mm. of brass and the felt pad. The patient's chin is protected with lead and a pall of cotton.

R L P B B T M M D

### Grie G W. The Diagnosis and Treatment of Enlarged Thymus. *Am J Surg* 1924; 1: 4

The author discusses the comparative frequency of enlarged thymus, the diagnosis and the value of radium in the treatment. The average roentgenologist sees a fair number of these cases and in the majority of them the final diagnosis is at the treatment rest in his hands.

Aside from the so-called thymic stridor, none of the clinical signs is pathognomonic. Therefore diagnosis is



must be based upon the roentgenogram. As a rule the thymus shadow extends on both sides of the spine and its lateral borders are convex or bulging rather than concave as are those of the shadow seen in tuberculous adenitis of the superior mediastinum. Below here it merges with the base of the heart it is wider than it is above at the base of the neck. Probably the main differences between the shadow of the thymus and that of other masses in the mediastinum which may be confused with it are that the former is more or less symmetrical on both sides and is wider below than above. It fits down over the base of the heart like a cap on the head.

Grier emphasizes the fact that the thymus shadow increases remarkably in size when the baby cries. If the enlargement is only moderate it may not be recognized unless the child is allowed to cry during the exposure. Plates made during the course of treatment to note reduction in size are reliable only when made with the infant in the same state as it was when the first plates were made—crying or quiet. It is interesting to have exposures of both states at each examination.

The enlargement which occurs when the baby cries is probably caused by engorgement of the gland with blood as a part of the general congestion of the blood vessel above the diaphragm or by the elevation of the diaphragm incident to the forced expiration during crying. As the elevation of the diaphragm lifts the heart the thymus lying above the heart is lifted up and spreads out on each side.

Radiotherapy gives a complete cure in a high percentage of cases. While the results of roentgen irradiation are very satisfactory the author has abandoned this treatment in favor of radium because of the quicker response to the latter and the greater ease and safety of its application.

Four tubes of radium each containing 25 mgm are placed in a wooden block with holes 1 in apart

to contain the capsules. The filter used is 1 in of brass. The block is left in position for 10 to 15 hours with the radium at a distance of 3 in from the skin. This dose does not produce an erythema. As only one treatment is sufficient but occasionally the radiation must be repeated. The radium applicator must be covered with lead on the upper surface because it comes high up under the baby's chin and is apt to produce a burn. *ABRAHAM HARRIS, M.D.*

## MISCELLANEOUS

Wertheimer P. Tuberculous Lymphangitis and Adenitis of the Intercostal Spaces (Lymphangites t adenites t berculosas d e p s intercostales). *Rev d Ch. Pa.* 1924; 70: 70.

In the course of three operations Wertheimer made certain anatomopathological observations concerning the evolution of tuberculous processes in the thoracic wall which he thinks of interest.

It is generally believed that tuberculous abscesses of the thoracic wall are secondary to a subjacent tuberculous focus either pleural or pulmonary. Little importance is given to lymphangitis or adenopathies.

In the author's first case the condition was a tuberculous adenopathy in the intercostal spaces resulting from subcentric pleuropulmonary tuberculosis.

The two other cases showed that similar lesions of the lymphatics of the thoracic wall may be localized to a single intercostal space and that the adenitis may evolve toward suppuration.

In the formation of cold abscesses of the thoracic wall the glandular suppuration may represent the stage between the pulmonary or pleural infection and the parietal involvement. Not all old abscesses of the thoracic wall are osseous or arthritic.

W. A. BREYAN

## SURGERY OF THE ABDOMEN

## ABDOMINAL WALL AND PERITONEUM

Keith Sir A. On the Origin and Nature of Hernia  
B J S 10 4 8 455

Man is peculiarly liable to hernia it is estimated that twenty of every 1 000 male inhabitants of Great Britain are ruptured. From the standpoint of age incidence the study of a large group shows that during the first year of life forty four of every 1 000 babies are ruptured between the ages of 1 and 5 years there are only nine per 1 000 and 1 between the ages of 6 and 10 years the most immune period only six per 1 000 are affected. Between the eleventh and fifteenth years there is a slight increase between the ages of 16 and 20 years the incidence has increased to twenty five per 1 000 and in the twenty fifth year it has increased to thirty per 1 000. Thereafter there is a fall until after the sixteenth year when the incidence drops to that of childhood. The infant and the man at the height of muscular development are the most liable to hernia. Ninety per cent of hernia are inguinal 2 per cent femoral and 3 per cent umbilical.

The author is one of the opinion that the majority of hernia are of the acquired type. It is, through points of weakness in the abdominal wall. From studies in comparative anatomy it appears that in the human being the plaenta and membranes represent an enormous expansion of the umbilical hernia. Shortly after birth the hernial sac is merely the cord-sploughs. The scar is an out-look but no pocket of peritoneum remains. The incidence of umbilical hernia is high in infancy because of weakness of this scar tissue. It remains until full development the condition is rare. It gets frequency in adult life is due to stretching of the linea alba by obesity or pregnancy.

The descent of the testis is through the inguinal canal after birth. The process is imperfect in both sexes. In males it may be regressed as in the case of the female. The descent of the testis is through the inguinal canal after birth. The process is imperfect in both sexes. In males it may be regressed as in the case of the female.

transversalis fascia. The shutter is worked by a reflex nerve mechanism.

The explanation offered for congenital hernia of the diaphragm is that the pulmonary cavities represent interstitial hernial sacs and failure of complete closure of the sac permits the entrance of the abdominal contents.

Spina bifida and encephalocele represent herniation due to an increase of pressure in the cerebrospinal fluid system during early fetal life.

Retropharyngeal pouches are not developmental in origin being caused by repeated pressure. They always occur through the same point a pharyngeal aperture in the posterior wall of the pharynx between the two parts of the inferior constrictor.

Duodenal lacerations occur usually at the point where the common duct perforates the muscular wall in an area of weakness.

In the jejunum and the sigmoid diverticula are usually found in the mesentery. Here the wall of the diverticulum is perforated by vessels.

A femoral hernia traverses the femoral ring and the femoral canal. The latter is a potential space allowing for expansion of the femoral vein during engorgement. The water hammer action of the blood in the femoral vein drives the fat out of the femoral canal and the peritoneum to which it is attached is dragged with it, thus a femoral hernia is formed. If any of the bladder is due to similar

Retroperitoneal hernia occurs when the peristaltic action forces a knuckle of bowel into a small recess such as the duodenal fossa where it may become progressively larger. Hernia into the foramen of Winslow is rare because any increase in the intrabdominal pressure serves to close this opening.

In summarizing the author says that most of the  
guilth rate of infancy are formed into the funic  
ular pro a sac of developmental origin but that  
the childhood and the adult hernia are formed  
together and simultaneously. Femoral umbilical  
hernia and direct inguinal hernia occur through  
weak points in the abdominal wall as the result of  
repeated intrabdominal pressures.

ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

Kern I C Tuberculosis Iritoniti and Its Treat  
ment J. I. S. M. Soc. 1924 59

Tuberculous peritonitis is considered a borderline type of ailment of interest to both the internist and the surgeon. Many advocate medical treatment until certain results are obtained or until failure is acknowledged.

Surgical treatment is most prompt in the asymptomatic form with free fluid in the abdominal cavity and few adhesions. In the fibrous type surgery is not the

best form of treatment. The results of operation are even poorer in the suppurative type unless there is intestinal obstruction or some other condition which makes surgery imperative.

For the ascitic type of case the author advocates early operation. All fluid and when possible the foci of infection should be removed. The latter include the appendix and tubes but not the uterus. If possible drainage should be avoided. Care should be taken to prevent infection of the surgical wound. Iodine should be used in the subcutaneous tissues after closure of the peritoneum and before closure of the skin.

The prognosis of tuberculous peritonitis depends on a number of factors: the patient's age, the type of the peritonitis, and the treatment. In advocating surgical treatment of suitable cases the author recommends that they be treated also in the same way as all other cases of tuberculosis. The patient should have rest, light, fresh air, a nourishing diet, and careful nursing. The history of the patient's entire life should be taken, and a thorough physical examination of the entire body should be made with special attention to the lungs, kidneys, and genital organs. If the condition is of the ascitic type, operation should be performed as soon as possible. After the operation the patient should be kept under observation and instructed as to his manner of life and the value of rest, light, and proper diet for a year or more after he leaves the hospital.

HUGH A. McKEITHEN, M.D.

### GASTRO INTESTINAL TRACT

**Raul P.** Disinfection of the Mucos. with Iodine. *The Course of Operations upon the Gastrointestinal Tract* (La disinfestación de las mucosas par el yodo). *J. d. I.* 93, 47.

There has always been a diversity of opinion as to the advisability and efficacy of applying tincture of iodine to the exposed mucosa of the stomach or intestine in an effort to prevent contamination of the peritoneum. Many have maintained that tincture of iodine used in sufficient quantity to sterilize the mucosa impairs the viability of the tissue.

Raul made a careful bacteriological study of the mucosa of the gastrointestinal tract before and after the application of a small quantity of 5 per cent tincture of iodine. He concludes that this amount occasionally gives complete sterility and always asepsis and believes that the use of iodine is better than the methods commonly employed to protect the peritoneal cavity.

LOYAL E. DAVIS, M.D.

**Bolton C.** The Principles of Treatment of Gastric Ulcer. In *View of Recent Works in Medicine*, 94, 130.

Bolton discusses the effect of disordered gastric function upon the healing of gastric ulcers. When the gastric function and the diet are normal, an

ulcer heals readily, but as the lesion usually increases the irritability of the stomach foods which normally are easily tolerated are apt to cause disturbances of function which arrest the healing of the ulcer. The ease with which an ulcer heals depends upon its character. Many chronic ulcers are incapable of healing at all.

An ulcer of the stomach originates as a simple acute ulcer or as a spreading acute ulcer. The simple acute ulcer forms from a strictly localized initial lesion involving the mucous membrane of the submucous tissue and often the muscular coat but rarely the peritoneum. When the dead portion separates, an artery usually opens up and hemorrhagic results. Perforation however is very rare. This type of ulcer tends to remain distinct, healed, and as a rule its healing is complete in from three to four weeks. In some cases however the ulcer thickens its base becomes excavated and healing is arrested for many months.

The spreading acute ulcer begins at one point in the mucous membrane and spreads in a circular or oval fashion, destroying one layer of the gastric wall after another and forming a terraced edge. The peritoneal base becomes adherent to the surrounding organs and the ulcer tends to bleed. Perforation may occur. These ulcers heal with surprisingly little thickening or become chronic.

Chronic ulcers may arise from the failure of a simple acute or a spreading acute ulcer to heal. There are two types of chronic ulcer: (1) the large flat ulcer with a thickened base or in which the base has disappeared exposing other viscera, and (2) the ulcer with a very thick base which not uncommonly forms a palpable tumor.

The ulcer acts as an irritant affecting the neuromuscular mechanism of the stomach, the acidity of the gastric contents, and the secretion of gastric juice. The part most affected is the pyloric region. The pyloric sphincter becomes irritated, fails to relax normally, and finally becomes spasmodic. Delay in the emptying of the stomach results.

Normally when the combined and free hydrochloric acid rises to about 0.2 per cent the pylorus relaxes, allows the regurgitation of bile and pancreatic juice into the stomach with the formation of inorganic chloride. The acidity falls as the stomach empties. In the spasmodic stomach the sphincter does not relax, the acidity continues to rise, and hyperacidity results.

The progression of the digestive process often gives rise to hypersecretion of gastric juice. When organic pyloric obstruction supervenes these effects become permanent. An ulcer of the body of the stomach does not cause hyperacidity unless the pylorus becomes irritable or hypersecretion is present.

In experiments on cats variations in diet were found to have a marked effect on the rapidity of the healing of ulcers. In milk fed cats Bolton found that the base of the ulcer was completely covered with epithelium on the twentieth day while in meat fed animals it remained entirely uncovered or the epithelium

thelium had merely reached the periphery. This delay in the growth of the epithelium was due to necrosis of the superficial cells of the granulation tissue base of the ulcer. The necrosis was due to the prolonged action of the hydrochloric acid and was accompanied by excessive formation of fibrous tissue in the base of the ulcer.

In a series of experiments it was found that the healing of the ulcers was delayed in proportion to length of time that food was retained in the stomach.

In monkeys it was found that the introduction of hydrochloric acid into the stomach caused a delay of two or three times the normal healing time. The introduction of 0.1 per cent or weaker hydrochloric acid had no effect.

The objects of treatment in gastric ulcer are (1) to lessen the neuromuscular irritability especially of the pylorus and thereby facilitate the emptying of the stomach and restore the normal duodenal regurgitation and (2) to reduce the amount of gastric juice secreted. It is important to recognize the fact that the disappearance of pain is not an index of the restoration of normal gastric function nor of the healing of the ulcer.

The treatment is divided into two stages (1) preliminary treatment and (2) subsequent treatment.

The first period lasts six weeks. During this time the patient is kept in bed to reduce the expenditure of energy in order that the diet may be reduced to the minimum. As the excessive irritability subsides the diet is gradually increased until the patient is receiving the full diet that he is to be allowed. He then is permitted to get up.

In the subsequent treatment the food is liquid or semi-solid finely divided and free from irritants. The gastric contents are neutralized during the later stages of digestion by antacids to prevent irritability of the pylorus. To reduce the secretion of gastric juice no meat is allowed unless the extractions are removed by boiling. Citrus fruit and raw eggs are given. Fat is allowed in the form of butter, cream, boiled bacon and oil. Feedings are given every three hours. Rectal feeding is resorted to only under conditions (1) bleeding from the stomach (2) uncontrollable vomiting an uncommon complication in gastric ulcer.

Alkalis are given one or two half to one hour after each meal on alternate days during the night if the patient is awake. The best alkalis are lithium carbonate, magnesium oxide, aluminum hydroxide and sodium bicarbonate. All of these take place in the treatment.

The only direct method of dealing with hemorrhage from a gastric ulcer is excision. (CLAYTON F. A. M.D.)

Pritchard J. E. Tuberculous Ulceration of the Intestine. *C. J. M. J.* 94.

Recent work has proved that many cases of intestinal tuberculosis can be cured by full treatment in sanatorium routine with the addition of light therapy. Irregular report of treatment and prognosis.

ing definite intestinal lesions. He studied these cases for the purpose of ascertaining the earlier manifestations of the disease.

The onset is insidious, the disease being usually well established before the patient makes any complaint referable to the gastrointestinal tract. In all of the patients studied there were pulmonary lesions and in thirty-nine these antedated the intestinal lesions. In one case there were no definite symptoms but the X-ray showed a very marked filling defect. In five cases the general breakdown was coincident with the onset of intestinal symptoms. In every case general symptoms such as loss of weight or energy or an increase in nervous irritability were manifest before the onset of local symptoms.

Nervousness is known to be one of the earlier symptoms of intestinal involvement. Anorexia is a common and often the first symptom abdominal discomfort being a close second. Definite pain was the most frequent complaint being present in forty-two cases but was the first symptom in only five. Flatulence was noted in twenty-six cases but followed some of the others mentioned. Nineteen patients reported nausea, ten had attacks of vomiting and nineteen were constipated. Next to pain diarrhea was the most frequent symptom occurring in thirty-five cases.

The physical findings were comparatively insignificant. In only one case was there even slight rigidity and in only two cases were there palpable masses. Tenderness was present in twenty-two cases and in the majority was located in the right iliac fossa.

Barium meals were given in forty-four cases. In forty-three there were definite filling defects. In one case there were doubtful. In twenty-eight cases there was hypermotility and in five the barium was cemented in the small bowel.

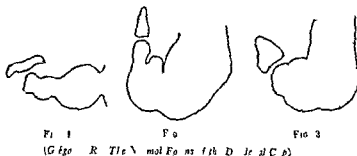
The stomach contents were examined in fifteen cases. The acids were normal in twelve and low in one. Two showed absence of free hydrochloric acid and a low total acidity. Tubercle bacilli were found in the faeces in twenty of twenty-two cases. Occult blood was found in thirty of forty-two specimens.

Lus and soluble albumin which latter according to Cooley means ulceration were found in thirty-two cases each. (CLAYTON F. A. M.D.)

G. Égrole R. The Normal Forms of the Duodenal Cap. (*Les formes normales du bulbe duodénal*). *Bull. Imm. S. d. Ch. d. I.* 1923, 1, 1: 52.

The normal duodenal cap as revealed by the X-ray in the standing position has three types of form. These types and positions bear a definite relation to the general configuration of the body. The duodenal cap hyper and stomach adapt themselves in shape and position to the form of the thoraco-abdominal structure.

Type 1 (Fig. 1) is found usually in robust males with a short and large thorax. The duodenal cap is flattened into a wagon-wheel shape being wider



than it is high as if it were compressed against the undersurface of the liver and rectilinear. Its upper surface is slightly convex and its lower surface somewhat concave. Its two short sides external and internal are curved and convex. It is nearly horizontal or moderately inclined at the base. The stomach has the appearance of a coriaceous and the liver is broader than it is high.

Type 2 (Fig 2) is found most frequently in the slender female with a long thorax. The duodenal cap is drawn out to a candle flame shape being higher than it is wide and takes a vertical position. Its base is concave and parallel with the pyloric antrum. The stomach is elongated the ascending portion being parallel with the descending part. The liver is higher than it is broad.

Type 3 (Fig 3) is found in persons midway between Types 1 and 2 this is the most common type. The duodenal cap forms almost an equilateral triangle with rounded angles. The base is concave and follows the curve of the pyloric antrum. The cap is directed upward and inward and is inclined about 45 degrees to the horizontal. The stomach has the form of a sock or a hammock. The liver is almost as broad as it is high.

As the pathology of the duodenum is of increasing interest to surgeons today the author believes that the various normal forms of the duodenum should be emphasized in order that normal positions may not be regarded as pathological.

WALTER C BURNETT, M.D.

**Brown, A. P. Simple Ulcers of the Jejunum and Ileum. *East Angl Med J* 9:14 n 22 45**

The literature contains the reports of only thirty-five cases of simple ulcer of the small intestine. These do not include peptic ulcers found in the stomach and duodenum or secondary ulcers occurring in the small bowel in dysentery, tuberculosis, carcinoma, and intestinal obstruction.

Simple ulcers are found more frequently in the ileum than the jejunum. As a rule they are round and clean cut, the punched-out edges the mucosa suffering considerably more extensively than the serous coat. There is usually very little inflammation or reaction.

The etiology is obscure. The most local theory attributes them to infection. Trophic changes occur

in the presence of rests of gastric mucosa in the intestine and abnormal functioning of the endocrine glands may be other factors.

Simple ulcers of the jejunum and ileum occur more commonly in the male than the female. The most constant symptom is pain in the middle of the abdomen. Often this is associated with the ingestion of food. Usually it is not severe enough to cause the patient to seek surgical treatment until perforation occurs. The syndrome is most commonly confused with that of gastric and duodenal ulcer and acute appendicitis.

The treatment is surgical. Simple closure of the perforation is best if it can be done without narrowing the bowel too much. Enterectomy may be necessary. Drainage is usually required if the perforation is in the lower bowel.

The author reports in detail ten cases of simple ulcer of the ileum which came under his observation.

CYRIL J. GILES, M.D.

**Gladstone, R. J. and Wakeley, C. P. G. The Relative Frequency of the Various Positions of the Vermiform Appendix as Ascertained by an Analysis of 3,000 Cases. *Br J Surg* 1941, 28: 53**

The authors observed the position of the appendix in 3,000 cases at operation or at autopsy. In twenty-seven (0.9 per cent) it was anterior or preileal in fifteen (0.5 per cent) splenic or postileal in 525 (17.5 per cent) pelvic on the psoas muscle near or hanging over the brim of the pelvis in fifty-six (1.86 per cent) subcecal beneath the caecum and in 2,076 (69.2 per cent) postcecal and retrocecal. In one case the appendix and caecum were displaced upward and to the left beneath the stomach and in front of and below the transverse colon.

Four varieties of the most common type, the postcecal or retrocecal appendix, were found. They are described as follows:

1. Appendix free in a postcecal or retrocecal pouch of peritoneum.
2. Appendix held in contact with the caecum or the ascending colon by a short mesentery.
3. Appendix adherent to the caecum or colon with the appendix forming the anterior wall of a retrocecal pouch or peritoneum.

4 Appendix behind the cæcum and ascending colon but because of obliteration of the retrocolic pouch entirely extraperitoneal

Congenital absence of the appendix and left sided appendix were not found in this series of cases

JOHN L. DIES M.D.

#### Cross D. G. T. K. Action of Physostigmine and Pituitrin upon the Isolated Vermiform Appendix B. I. M. J. 924:9

This article is concerned only with ileus of the dynamic type. The author discusses the danger of ileus Cannon's and Murphy's conclusion as to the cause and the past and present methods of treatment. In animal experiments Gunn found that there appeared to be a genuine synergism between pituitrin and physostigmine evidenced by the fact that smaller doses of these substances in combination produced a more pronounced stimulative effect on the intestinal movements than much larger doses of either given alone. He therefore suggested that combination of pituitrin and physostigmine would probably be more efficacious than either alone in the treatment of postoperative ileus.

The large majority of the cases of slight postoperative distention studied by the author yielded to enemata. A certain number which were more resistant responded to pituitrin or physostigmine alone. The remaining cases were not benefited by either drug separately and therefore were treated with both. The results in the latter were as follows:

In five cases which were considered despite the relief given as astonishing. In one case 1 ft. and in another 6 ft. of gangrenous intestine were removed. In one case an incarcerated uterus formed an absolute mechanical obstruction in the pelvis. In one case the treatment failed entirely as the patient succumbed to an intense general septicæmia.

Experiments were made also on isolated human appendices suspended in Locke's solution kept at a temperature of about 37 degrees C.

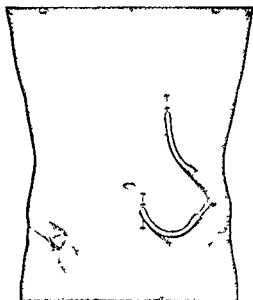
The author offers the following summary:  
1 Experiments on the isolated human appendix have shown that physostigmine and pituitrin in combination have a more powerful effect in stimulating movements of the intestine than either alone.

2 A number of cases of severe postoperative atony are described in which this combination relieved the condition when physostigmine or pituitrin alone failed to do so. Indeed no case thus treated has failed to respond unless there was suspected mechanical obstruction.

EMIL C. ROBTSHIEA M.D.

#### Winkle D. P. D. Temporary External Abdominal Intestinal Anastomosis Through a Tube B. I. J. S. g. 19:4 568

The question of short circuiting an obstruction of the intestine by means of a tube leading from the distended bowel above to the empty intestine below has hitherto received scant attention. Winkle reports



Upper tube drawn first coil of jejunum connected up with lower tube to the left of small intestine below the level of the umbilicus. The tube was cut for 12 ft. of content passed through the cut for 12 ft.

a case of acute perforative appendicitis in which obstruction developed on the fourth day after operation. Under gas anesthesia a loop of intestine below the obstruction was exposed and a rubber tube inserted. Gas but practically no solid contents came away. Large quantities of glucose and peptonized milk were then given through the tube. Later the patient's condition becoming more unfavorable a loop of gut above the obstruction was brought out under local anesthesia and a second tube inserted. A large quantity of fecal matter came away but the patient failed rapidly. The two tubes were then connected up so as to short circuit the obstruction and to form an artificial intestinal loop. Thereafter the patient steadily improved and two months later was able to resume his work entirely well.

JOHN L. DIES M.D.

#### Fansler W. A. The Rectum as a Factor in Chronic Focal Infection M. I. M. d. 924:1:10

No case in which focal infection is suspected should be deprived of the benefit of a rectal examination. As a rule proctitis and colitis are easily diagnosed by means of the proctoscope. Infected hemorrhoids are usually recognized but occasionally the ulceration is hidden. Ulcers present little difficulty if the proctoscope is employed but a Houston valve may sometimes conceal them.

Cryptitis should be recognized for although it may cause few symptoms it is the most frequent forerunner of sinus. All of the crypts should be explored and particular attention should be paid to

the terminal portions which may harbor infection the starting point of an abscess.

Sinus are most frequently overlooked. These usually open into the pocket at the lower end of a crypt but in rare cases open above the crypt area. They extend (1) outward and downward (2) upward (3) downward just beneath the skin and rarely (4) into the tissues at right angles to the rectal wall. They are always the result of abscess formation. The latter may be a frank perianal or ischio-rectal suppuration or a slowly growing indurated abscess which evacuates into the bowel. Inguinal adenopathy may be associated with it. To diagnose the sinus the lower rectum should be dilated and the crypts of Morgagni explored with blunt probes.

M. L. MASO, M.D.

**Anduze. A Case of Serious Hemorrhagic Rectocolitis Treated with the Antihemorrhagic Serum of Dufour and Le Hello.** (*Arch. de med. de recto-colite hémorragique* *g. ave. tr. té. par le sérum a. t. hémorrag. de Dufour et Le Hello*) *Rev. et. m. Soc. med. d. hôp. de P.* 1923 3 24 14 S.

The case reported was that of a 33 year old man who from 1907 to 1910 had simple mucob hemorrhagic evacuations every three months and from 1919 to 1921 once every month. During the last month before he consulted Anduze severe intestinal hemorrhages occurred about every fourth day during defecation and were associated with tenesmus and griping along the course of the pelvic colon. The patient was very poorly nourished, walked with pain and appeared exanguinated. He had been treated by several physicians for dysentery.

On examination no hemorrhoids were palpated and the rectal mucosa felt soft but the examining finger was covered with blood. Stool examination showed only the usual finding and no protozoan parasites or cysts. On rectosigmoidoscopic examination at a distance of 1 to 30 cm from the anus or as far as the instrument would reach the mucosa was red, congested and very friable. Bleeding as caused by the least touch. No tumors or ulcerations were seen. Because of the clinical course the patient was put on emetine treatment for amebiasis. This was without benefit. The hemorrhages became more severe and large blood clots were passed. Irrigations with turpentine, potassium permanganate, silver nitrate, etc. failed to give relief.

Following the intramuscular injection of 0.5 cc of the antihemorrhagic serum of Dufour and Le Hello there was a great shock, the diarrhoea and vomiting but the hemorrhage decreased and on the second day ceased. Six days later when it recurred 40 cc of the serum were given the doses were added to avoid a pyrexial reaction. Shock, as less severe. Bleeding ceased within two days. The patient gained weight and color and his general condition became excellent.

About three months later another recurrence of the hemorrhage which was treated with 40 cc of

of the serum subsided in one day. During the next ten months the patient gained 12 lbs and returned to work. Rectoscopic examination showed nothing abnormal. The rectum was treated daily with Friedl's mixture (dermatol 10 gm, calcium carbonate 20 gm, laudanum 30 drops, oil of guaiac 10 cc, adrenalin 30 drops, mucilage 100 gm).

Another slight recurrent rectal hemorrhage was treated with an injection of the serum followed by daily lavage with a weak silver nitrate solution for six months. There has been no further bleeding for one year.

WALTER C. BIER, M.D.

## LIVER, GALL BLADDER, PANCREAS AND SPLEEN

**Schneider J. P.** The Diagnosis of Chronic Cholecystitis. *M. J.* 1914 19 3 167.

**Bissell F. S.** The Roentgenological Diagnosis of Chronic Cholecystitis. *M. J.* 1913 1 681.

**Ritchie H. P.** The Surgical Diagnosis of Gall Bladder Disease. *Minnes. Med.* 1913 1 683.

**Schwytzer A.** The Surgical Treatment of Diseases of the Gall Bladder and Bile Channels. *M. J.* 1914 19 3 683.

SCHNEIDER states that the development of chronic cholecystitis may be divided into 4 stages. The first and second decade are characterized by symptoms of a toxic condition such as periodic headache and by reflex digestive disturbances such as fullness, belching, and qualitative food distaste. During this early period there are no localizing signs. During the third and fourth decades the symptoms become more pronounced. For a time there are attacks of vomiting and jaundice; the right hypochondrium. Later there are definite attacks of biliary colic with evidence of active infection in the biliary tract. From the fourth to the eighth decade the complications are apt to appear in the form of empyema of the gall bladder, gall stone in the common duct, pancreatitis and malignant disease.

In the differential diagnosis of disease of the duodenum, pyelitis and right kidney, a definite medical condition such as angina pectoris and the gastric crises of tabes must be considered. Careful attention to the history supplemented by laboratory studies will usually define the lesion.

The author directs attention to the following atypical forms of gall bladder disease:

1. The dilated gall bladder in which the first symptoms are severe and sudden biliary colic.

2. The fibrotic gall bladder with absence of local symptoms and a daily rise in the temperature similar to that of pulmonary tuberculosis.

3. The neurologic gall bladder with absence of abdominal complaint but with a variety of nervous symptoms.

4. The hypercholesteremic gall bladder with such conditions as pernicious anemia and hemolytic jaundice.

Bissell reports that the statistics of diagnostic tests are largely problematical because the negative cases are rarely checked by operation or autopsy. Cases referred to Bissell for X-ray study of the stomach and duodenum are subjected to a study of the gall bladder especially if the stomach and duodenum are found to be negative in the presence of symptoms in the upper part of the abdomen. The patient is fasted for twelve hours and at the end of that time a series of roentgenograms of varying intensities are made of the right half of the abdomen with rays of different degrees of penetration. Routine gastric examination is then made. Direct evidence of gall bladder disease: its visualization in the presence of shadows cast by stones. The contents of the gall bladder and the condition of its wall determine its presence or absence in the roentgenogram. The normal gall bladder is not visible. Direct evidence of disease of this viscus is given by changes in the motility and tonicity of the stomach and pylorus and by pressure deformity of the duodenum and duodenal cap. Roentgen signs are considered conclusive in many cases, and in others are only contributory to the final diagnosis.

Recent discussion deals with the interpretation of surgical pathology found at operation. Following adequate exposure of the parts there should be a definite form of procedure in the examination of the bladder, cystic duct, common duct, pancreas, duodenum, hepatic ducts, lymph glands, and liver. There must be on the lookout for anomalies of the vessels and ducts. Inspection and palpation of the bladder will reveal changes in its color, the thickness of its walls, its degree of compressibility, the gross nature of its contents. The fundus is the most common site of macroscopic disease. The stones must be carefully freed to expose the cystic duct and to avoid operative mistake. By the insertion of a finger into the foramen of Winslow the portion of the common duct can be palpated to determine the condition of the head of the pancreas. If necessary the pancreas may be exposed through the gastrohepatic omentum. Changes in the appearance of the liver are also important. It has been demonstrated a relationship between the size and disease of the gall bladder, pancreas, and duodenum.

The operative procedure should be determined on the basis of the character and degree of infection in any tract. Radical surgery is not indicated in the presence of severe acute infection in a very patient. Acute cholecystitis calls for a logical judgment. Gallbladder usually inolves the entire organ. Carcinoma may occur in the large gallbladder. Refractory lesions commonly of the terminal part of the intestinal tract. Malignant disease of the pancreas may be difficult to distinguish from chronic inflammation. Acute pancreatitis may be a minimal catastrophe or in its mild form may terminate in an attack of cholelithiasis.

If the hamolymphatic route of infection can be proved clinically the removal of the gall bladder in the early stages of the disease will depend upon the demonstration of changes in the liver.

Schwytzer states that in favorable cases a diseased gall bladder should be removed rather than drained and if possible the wound should be closed without drainage. Cholecystostomy is indicated when severe local infection is encountered in a very sick patient. The site of operation should be well walled off and freely drained. Other things being equal gangrene and empyema are not contra-indications to cholecystostomy.

Apparently symptomless stone in the gall bladder which may be encountered during exploration in a pelvic operation can be removed through a separate small incision. A drain should then be left in the gall bladder. Ideal cholecystostomy should be employed with extreme caution.

In severe hemolysis a simple cholecystostomy under local anesthesia can be done safely. The operation should be preceded by the administration of calcium.

A swollen lumpy pancreas is not an indication for saving and draining the gall bladder as this condition usually subsides after cholecystectomy.

In the majority of cases of clean cholecystectomy drainage of the field of operation can be safely discarded. A cholecystostomy needs no other drainage except the tube in the gall bladder. When drainage is indicated because of severe infection it should be established by soft rubber tubes or tissue rather than gauze.

When the common duct has been explored it should be drained because of the frequent temporary interference with the outlet of bile into the duodenum. Drainage of the duct is indicated especially in the presence of white bile.

Injury of the ducts is a serious complication of operation and is best avoided by thorough exposure and accurate identification of the structures. Carcinoma of the gall bladder and ducts is usually a hopeless condition when it is seen by the surgeon.

VERNE C. BURDEN, M.D.

Muscattello, G. Cholelithiasis with Particular Reference to Infection of the Gall Bladder and Pancreatic Complications (Lancet, 1913, p. 116). Do all the following: 1. Is it a simple or complicated case? 2. Is it a primary or secondary infection? 3. Is it a local or systemic infection? 4. Is it a chronic or acute infection? 5. Is it a benign or malignant infection? 6. Is it a simple or complicated infection? 7. Is it a primary or secondary infection? 8. Is it a local or systemic infection? 9. Is it a chronic or acute infection? 10. Is it a benign or malignant infection?

The author discusses cholelithiasis from the surgical point of view and urges closer collaboration between the surgeon and internist in the diagnosis and treatment. The problem is not purely surgical even under the most favorable conditions. Operation is not always a satisfactory result. In a considerable number of cases the reason for a unsatisfactory result is the delay of surgical intervention. The dangers of operation increase directly with the length of time operation is postponed. The danger which the patient is exposed when treated medically.



cally over a long period of time may be greater than that of a stormy postoperative convalescence.

Recent pathologic investigations of the biliary passages have led to the view that gall stones are due usually to infection of the gall bladder. Infection is found in at least three fourths of cases of cholelithiasis. In most of the others metabolic processes and disturbances account for the calculi. The very rare intrahepatic stones are due to chronic stasis and obstruction. The theory that biliary stasis may account for stones has received considerable support of late from Hendrickson, Shikani, and Berg.

Infections reach the gall bladder either through the blood stream, by way of the portal system or by the lymphatics. With regard to the association of appendicitis with cholelithiasis, the author states that as there is no direct communication between the appendix and the gall bladder we must assume that infections develop in the appendix, reach the gall bladder through the hepatic circulation. The assumption that the spleen may cause gall bladder disease by eliminating toxins and the products of infection into the portal stream is yet to be proved.

Stones may be formed around deposits of cholesterol crystals which become detached and mixed with squamated epithelium and lipid substance. It is probable that they may be formed in this manner without previous infection. Mann has been able to produce stones experimentally by the intravenous injection of chemicals.

Rosenow found bacteria in the substance of the gall bladder wall but not in the bile. In chronic cholecystitis such bacteria may at times become active and cause acute exacerbations. The formation of stones in an apparently normal gall bladder is yet to be explained. The theory that they may be due to a transient infection on which has left no trace has not been proved.

Pancreatitis is now known to be a much more common complication of cholecystitis than was formerly believed. The infection is spread by contact or by way of the lymphatics. Inflammatory lesions are interlobular and usually limited to the head of the pancreas. The island of Langerhans are seldom involved. Chronic pancreatitis usually develops to the stage of necrosis. If it is not too far advanced it can be cured by cholecystectomy or cholecystostomy and drainage. Even in advanced cases surgery of the gall bladder will improve the condition unless marked sclerotic changes have occurred. One of the organs most frequently responsible for chronic pancreatitis is the appendix. In 1923 Braithwaite reported that there is a direct communication between these structures through the superior mesenteric lymph nodes. Infection reaching the pancreas through the common duct usually causes an acute hemorrhagic enteritis.

To date no method has been found by which the correct diagnosis of cholelithiasis can always be assured. Palpation is seldom satisfactory. As a rule cholesterol calculi cause disturbance only when they are large enough to cause obstruction.

In such cases there are sudden attacks of severe colic of short duration. During the interval between the attacks the patient is free from symptoms. A similar syndrome may result from kinking. Other types of stones due primarily to infection usually cause the symptomatic triad of (1) dyspepsia which at first is mild but gradually increases in severity, (2) colics which are gradual in onset and (3) fever usually accompanying the attacks. The use of the duodenal tube has not given any valuable aid in the treatment or diagnosis. The X-ray has its limitations but a gall bladder that can be demonstrated in the roentgenogram may be considered definitely diseased. Functional tests of the liver do not furnish the information desired. A diagnosis of spasm of the common duct sphincter should be made with caution.

In the occasional case of cholecystitis medical treatment may result in cure but in cholelithiasis it is of no value. No substance is known which will dissolve stones within the body. The passage of a small stone does not cure the disease; there are always others. A large stone in its attempt to descend may cause perforation with disastrous results. The chronic cases allowed to go on for years with medical treatment during the acute attacks may suddenly flare up with unexpected and severe complications which become more dangerous as the patient becomes older.

In the treatment of cases of repeated attacks of biliary colic the medical practitioner should bear in mind the possibility of such conditions as acute diffuse angiocholitis, acute atrophy of the liver, perforation with peritonitis, abscess formation with rupture, acute obstruction and acute hemorrhagic pancreatitis. Besides these complications there are two which though they develop gradually may assume a serious aspect, viz. chronic cirrhotic pancreatitis and diffuse hydrops of the biliary passages. There is also the possibility of carcinoma of the gall bladder which not infrequently develops in the presence of calculi.

The uncertainty of medical treatment and the persistency and severity of attacks have recently reacted in favor of surgical intervention. Operation, however, is not to be considered when stones are merely suspected and the attacks are transient and of slight severity.

In general the best time for operation is between attacks unless the symptoms and abdominal findings warrant immediate intervention. The indications for operation are summarized by the author as follows:

Absence of cases in which the condition is due to occlusion caused by stones or kinking. The mortality in these cases is practically nil. Temporizing leads to the development of complicating inflammatory reactions.

2. Infected cases in which there may be perforation, empyema, cholangitis, or abscess formation.

3. Acute localized cholecystitis without complications. Operative measures should be instituted.

between attacks. If the patient is under 45 years of age it is best to operate early but if he is older operation should be resorted to only when medical treatment is found of no avail.

4 Hydrops of the gall bladder. Operation is necessary to prevent perforation and suppuration.

5 Cases of complete common duct occlusion. Operation should be done preferably between attacks. Such cases often develop serious complications. Acute occlusion with fever demands immediate operation.

6 Angiocholitis and hepatic reactions complicating cholecystitis. Immediate operation is indicated. According to the patient's condition either a cholecystectomy or a choledochotomy with drainage should be done.

7 Cases of acute hemorrhagic pancreatitis. Immediate intervention is necessary. If cholecystitis is present cholecystectomy is indicated. In cases of chronic pancreatitis complicating gall bladder disease the treatment should be cholecystectomy or cholecystectomy with choledochotomy and drainage. If the pancreatitis is of a cirrhotic nature with involvement of the papilla either a choledochoduodenostomy or cholecystogastrostomy may be attempted.

8 Cases of combined appendicitis and cholecystitis. Immediate operation is indicated.

The postoperative mortality depends chiefly on delay of the operation. The most common causes of death are peritonitis from infected bile and pneumonia from infected emboli.

With the exception of extremely rare cases all of the so-called postoperative recurrences are due chiefly to delay of surgical intervention. It is possible that a stone in an inaccessible location may escape the surgeon but it is only when operation is delayed that stones migrate to the inaccessible areas and adhesions are formed. The persistence of chronic pancreatitis after operation is also due to delay of surgical treatment. Achylia following operation is never sufficiently severe to cause serious disturbance and as a rule it was present before the operation. The possibility of postoperative hernia is no longer a valid reason for delaying operation as the improvement in operative technique and the elimination of drainage have greatly reduced the incidence of this complication. Drainage is necessary usually because operation has been too long delayed. The author's statistics show a recurrence of disturbances in 5 per cent of the cases operated upon for acute cholecystitis, 24 per cent of those operated upon for chronic cholecystitis and 25 per cent of those in which the common duct had become involved.

Careful preoperative preparation is necessary in every case. The presence of jaundice is an indication for the intravenous injection of 5 m. of a 10 per cent solution of calcium chloride for three days previous to operation.

Combined local and general anesthesia is best. Either a paramedian or a transumbilical incision should be made. When the abdomen has been opened

the appendix, duodenum and stomach should be inspected. Cholecystectomy is the procedure of choice in urgent cases in which a more radical operation is not warranted in cases of pancreatitis and cholecystitis without stone and in cases of cholangitis without stone in which cholecystectomy is impossible. Cholecystectomy is the method of choice in all cases in which it can be done successfully. In occlusion of the common duct choledochotomy is necessary. If the attack is accompanied by jaundice and fever a two-stage operation is indicated: the first stage cholecystectomy with the extraction of calculi and drainage and if the gall bladder is sclerotic choledochotomy with drainage; the second stage cholecystectomy. In the absence of a recent active infection drainage can be dispensed with but otherwise is essential. When in doubt the author drains. In uncomplicated cases a single tube is sufficient. The possibility of the formation of adhesions is not a contra-indication to drainage. In a large series of cases the author found it necessary to re-open the abdomen and free adhesions in only two and in both of these drainage had not been established. He objects to a T drain preferring a single tube surrounded by two small strips of gauze.

In conclusion Muscatello states that while choledochoduodenostomy appears to be a rational procedure it is still too early to pass final judgment regarding it. The transduodenal choledochotomy advocated by Lorenz has a disadvantage in the rupture in the intestinal tract. Walzel preferred supraduodenal choledochotomy; he cut the sphincter of the choledochus to allow free drainage into the duodenum and when the lumen was sufficiently wide he established choledochoduodenal drainage by means of tubing.

JAM. S. V. RICCI, M.D.

ROBERT T. FURTHER CONTRIBUTIONS ON THE PATHOGENESIS OF CHOLELITHIASIS (Weiter Beiträge zur Pathogenese der Gallensteinbildung). *Acta chirurgica Scandinavica*, 93: 1-207.

The author reviews his experience with 530 operative cases of gall stones and states his opinion that the primary foci for gall stone formation are the smaller bile passages in the liver. A precipitate of pigment in the bile passages becomes surrounded by mucoid material, epithelial cells and blood cells and the mass is bound together by cholesterol, bilirubin and biliverdin salts. With the flow of bile these minute granules are distributed throughout the bile passages and the gall bladder. The concentration of fluid in the gall bladder which is particularly marked in states of overnourishment and disease leads to a clumping together and a settling out of these small masses which then receive further deposits of bile and lime salts.

The formation of pure cholesterol stones is essentially the same process in its early stages as that of any other types. Cholesterol working into the interstices and fissures of the small pigment masses exerts its well known solvent action which results

in the replacement of the pigment by cholesterol partially or in rare instances completely. Proof of this is the fact that pure small cholesterol stones are never found as they would be if the process were only a gradual accumulation of cholesterol. On the other hand stones of all sizes are found with a pure cholesterol coating and a nucleus of pigment of varying size which represent stages of pigment absorption.

Conditions favoring the precipitation of bile pigment in the liver passages are pregnancy, infection and overnourishment.

Presenting statistics to show that gall stones are much more common in multiparae than primiparae the author explains the pigment precipitation on the basis of toxic substances in the maternal circulation. Body dehydration accompanying fetal growth and lactation may be another factor.

Thirty two cases of pure pigment stones found at autopsy in gall bladders that appeared normal illustrate the rôle of infections and systemic toxæmias in pigment precipitation. The pigment stones were certainly of recent origin and found throughout the duct system.

The author's discussion on the relation of infection and bile stasis in the biliary system ends with the conclusion that bile stasis with or without infection does not play a beginning rôle in the formation of gall stones. This is the opposite of Naunyn's theory. Cases coming to autopsy in which there had been a history of infectious jaundice failed to show stone formation with regularity. Infection superimposed on biliary tract obstruction from causes other than stone also failed to show evidence of stone formation such as might be expected if stasis and infection are prerequisites. In the great majority of instances, infection is a complication rather than a precursor of cholelithiasis.

Ptosis and associated biliary stasis are not factors in stone formation. Of 530 cases operated upon for gall stones only eighteen had gastrocolic ptosis and in none of these was operative necessity for that condition. Of 300 cases operated upon for ptosis gall stones were found in only 26 per cent.

The association of obstructive gall stones is purely clinical. However, many cases of acute biliary tract pain with the discharge of large numbers of small pigment stones into the intestine are those for which persons

Cholecystectomy is by all means the operation of choice for the surgical treatment of cholelith. Among 30 cases of the latter the author found in one instance a true recurrence of the disease in the absence of obstructive factors. Cholelithotomy does not prevent recurrence and definite detriment to the patient is in each instance caused by the hypoaesthetic property of the biliary tract which is due to the fact that the gall stones occur in the biliary tract. Cases of known cholelithiasis which have been treated by malacitivation

The general method of treatment is followed by dilatation of the sphincter below the

exemplified in obliteration or obstruction of the cystic bile duct. Relaxation of the sphincter of Oddi and decreased gastric acidity favor infection of the biliary ducts. Experimentally it has been shown that following ligation of the cystic duct the pancreatic secretion diminished by approximately one third.

Cholecystectomy should be performed only under unusual circumstances such as atresia of the cystic duct or gangrene of the gall bladder. Partial gangrene warrants resection of the gangrenous area.

WILLIAM P. VAN WAGEN, M.D.

Wahl H. R. Carcinoma of the Biliary Tract. *Med. Clin. N. Am.* 1944, 233.

Six cases of carcinoma of the biliary tract are discussed from the standpoints of clinical and autopsy findings.

The first case was that of a 75-year-old woman with syphilis who for nine months had had vague abdominal pain, edema of the feet, shortness of breath, enlargement of the abdomen and slight jaundice. A movable mass was palpated to the right of the umbilicus. There was no history of gall bladder disease. Autopsy revealed primary carcinoma of the gall bladder which had perforated into the colon and numerous metastatic tumors in the liver.

The second case was that of a man aged 61 years who had had severe abdominal pain, edema of the feet, shortness of breath and ascites for several months. Large amounts of straw-colored fluid were removed at frequent tapings. The liver was markedly enlarged. There was no jaundice. At autopsy the surface of the liver was found to be smooth and regular but the right lobe had become almost entirely replaced by a gelatinous carcinoma. In the left lobe were many smaller masses. This was a case of primary carcinoma of the liver arising from bile duct epithelium.

The third patient, a woman 73 years old, had had discomfort and pain in the right upper quadrant for ten weeks and for eight weeks deep jaundice and clay stools. There was no history of biliary colic. The liver was enlarged. Autopsy revealed a primary carcinoma of the liver which diffusely involved the small ducts and was associated with a marked fibrosis.

The fourth case was that of a man aged 51 years who had had a hernia and deep constipation since childhood. There was no previous history of gall stones. The liver was enlarged. Death occurred on the day following laparotomy. Autopsy showed a hard fibrous bile duct carcinoma involving the junction of the right and left hepatic ducts causing complete obstruction.

The fifth case was a case of primary carcinoma of the junction of the cystic hepatic duct common to a woman 66 years of age who had been deeply jaundiced five months.

The sixth case was that of a man 70 years of age who had had biliary colic for many years and had

been jaundiced for six weeks. Four years ago she had had a cholecystostomy for stones. The author removed a stone from the common duct and performed a cholecystectomy. Death occurred the next day. At autopsy the common duct was found markedly dilated and the ampulla of Vater involved by a carcinoma.

VERNE G. BURDEN, M.D.

Inlow W. DeP. The Spleen and Digestion. Study IV. The Spleen and Biliary Secretion. The Reaction in Bile Pigment Secretion Following Splenectomy. *Am. J. M. Sc.* 1924, CLXVI.

The author reports experimental data regarding the biliary secretion in four dogs, three of which were splenectomized.

In normal dogs with biliary fistulae it was found that the greatest flow of bile occurs during the feeding of meat and the least during fasting. The amount of bile acid fluctuates decidedly; it seems greatest on meals of lard and of meat and varies directly with the amount of bile secreted. The output of bile pigment from hour to hour is remarkably uniform. It does not vary with the amount of bile secreted; the concentration of pigment is low when the amount of bile is great and high when the amount of bile is small. The total amount of pigment remains about constant. On the average about 3 mgm. of bilirubin are secreted for each kilogram of body weight in six hours. The output of pigment seems to be little influenced by the food.

Following splenectomy the amount of bile secreted when food is given is increased about one-fourth above the amount under similar conditions before splenectomy. Fluctuations in the amount of bile are more marked. The amount of bile acid remains

about the same. There is an immediate slight rise in the percentage of hæmoglobin in the peripheral blood and in the erythrocyte count, which is followed by anemia in which the percentage of hæmoglobin falls more rapidly and tends to return toward the normal more rapidly than does the erythrocyte count. The curve representing the output of bilirubin resembles that representing the percentage of hæmoglobin. An immediate rise after splenectomy is followed by a fall to much below the normal, which is most marked between the tenth and twenty-fifth days. The curve then rises again. The fluctuations in output of bile pigment are much more marked. When the pigment secreted is determined during a sufficiently long time the average amount is found to remain the same. The author suggests that the disagreement in the findings of previous investigators may be merely an expression of the reaction mentioned and due to differences in the length of time after splenectomy at which the determinations were made.

It is probable that there is a normal cyclic variation in the output of bile pigment. The chief fluctuations seem to come at intervals of approximately one month between these are minor fluctuations. The fluctuations are markedly accentuated by removal of the spleen.

The hypothesis is proposed that the factors responsible for the blood picture after splenectomy are responsible also for the reaction in the secretion of bile pigment after removal of the spleen, and that if there is a cyclic mechanism in the elaboration of bile pigment the spleen exercises a regulatory influence upon this phenomenon.

J. S. BOLLMAN, M.D.

# GYNECOLOGY

## UTERUS

Whitehouse B and Featherstone H Certain Observations on the Innervation of the Uterus *J Obst & Gynec Brit Emp* 1923 x. 585

The problem of uterine innervation and the nervous mechanism controlling parturition has interested the physiologist for many years and is of considerable practical importance to the obstetrician.

The theories generally accepted today may be summarized as follows

1 The nervous mechanism controlling the uterus is constituted by three systems (1) local (2) sympathetic (3) lumbosacral autonomic

2 The local system is capable of producing rhythmic uterine contractions and is independent of the sympathetic and autonomic systems in common with other involuntary muscle

3 The sympathetic stimuli are motor to the circular muscle fibers and inhibitory to the longitudinal bundles

4 The lumbar cord stimuli are motor to the longitudinal fibers and have an inhibitory effect on the circular fibers

5 Both autonomic and sympathetic stimuli are controlled by higher centers in the medulla and possibly in the cortex but are capable of acting independently

6 Reflexes autonomic and sympathetic are probably important factors in normal uterine contraction

7 The effect of uterine contractions depends upon the integrity and correctly adjusted balance of the autonomic and sympathetic impulses. Disturbances in either whether in the direction of augmentation or diminution will interfere with the normal course of parturition

In the classical cesarean section the advantages of lumbar anesthesia either alone or combined with general anesthesia are evident. When inhibitory stimuli from the lumbar cord are eliminated and the hypogastric impulses are allowed full play the circular muscle fibers of the uterus contract firmly and in so doing reduce hemorrhage to a negligible amount. In one case the fetus and five fibroids were removed at term with only a trifling amount of bleeding.

The contraction of the circular fibers produces also more marked eversion of the edges of the uterine incision than usual and consequently the introduction of the uterine sutures and accurate coaptation of the cut surfaces are facilitated.

In cases in which a temporary increase of intra uterine tension is indicated as in ante partum hemorrhage from premature separation of a normal

situated placenta it is possible that this may be obtained by means of lumbar cocainization with the risk of inducing labor.

In placenta previa on the other hand although the hemorrhage might be controlled temporarily by contraction of the lower uterine segment it is probable that subsequently it would be increased because of greater separation of the placenta.

When the uterus is exhausted spinal anesthesia will undoubtedly diminish the tendency to post partum hemorrhage. In the cases observed it diminished the amount of bleeding which occurred from the placental site.

For the same reason the authors prefer spinal to general anesthesia when it is necessary to evacuate the uterus by the vaginal route during the earlier months of pregnancy.

Tonic uterine contracton during labor as in cases of contraction ring and so called rigid cervix the authors attribute to excessive sympathetic stimulation.

Certain cases of intrinsic dysmenorrhea may have a similar etiology since each menstrual period is a miniature labor.

The authors warn against the employment of spinal anesthesia in cases of normal labor. By its use dilatation of the cervix is delayed and even if it is induced at the beginning of the second stage the expulsive power of the uterus is diminished and forceps delivery with its attendant risks may be thereby rendered necessary.

EDWARD L. CORTELL, M.D.

Peter L. Elctrothe mocautey Treatment of Leucorrhoea Due to Endocervicitis *Clinical Obstetrics and Gynecology* 1923 18 3

The true importance of chronic endocervicitis has been fully appreciated only in recent years.

The condition is often attended with pain in the pelvis and back which disappears without other treatment when the endocervicitis is cured. In some cases this focus of infection may have systemic effects. Endocervicitis is a common cause of sterility and the constant irritation may result in cancer.

In the past the treatment of endocervicitis has been a veritable *blanc noir* for both the general practitioner and the gynecologist. The sure cures so it were legion. Frequently deep cauterization with lunar caustic or amputation of the cervix was done but the cautery sometimes caused cervical ectropion of the cervical canal and sometimes hamatometria or pyometra. Amputation of the cervix in childbearing women resulted in miscarriage or dystocia from cervical contraction of the cervix. In some cases trachelorrhaphy was done

in an attempt to eradicate the diseased tissues but recurrence was the rule.

The cautery should be especially efficacious in cure endocervicitis due to gonorrheal infection because the gonococcus is susceptible to even comparatively low degrees of heat. This organism has been destroyed in the tissues by prolonged immersion in hot water by hot air treatment and even by hyperpyrexia. It therefore seems probable that the cautery would produce a degree of heat in the tissues between the cautery incisions sufficient to kill the infecting organisms without destroying the tissue cells. EDWARD L. CORNELL M.D.

**Corbus B. C. and O'Connor V. J. The Treatment of Gonorrheal Endocervicitis by Heat. S. J. Gynec & Obst. 1924. v. 1. 119.**

The authors review the work of Curtis and others who demonstrated that the tubes and endometrium play a minor rôle in the persistence of endocervical infection. The most infectious and persistent discharge comes from the endocervical glands. Therefore the treatment must be directed toward destroying the gonococcus with the least impairment of tissue.

The gonococcus is instantly destroyed at a temperature of 113 degrees F. and prolonged exposure to a somewhat lower temperature gradually brings about its disintegration.

The authors have used diathermy with a thermophore constructed so that the active electrode can be applied to the cervix. It is absolutely necessary to insure the proper temperature. The technique is given in detail. The temperature is maintained at 116 to 117 degrees F. for from thirty to forty minutes and the treatments which are painless are repeated every week or ten days. Between treatments a dry bath speculum is inserted 10 or 12 times a week. The heat of the bath is raised from 100 to 110 degrees F.

Thirty-five women were treated by this method. Twenty-two were under observation for two years and eighteen for three years. All showed complete and permanent elimination of the gonococcus. Thirteen disappeared from observation after the term nation of active treatment. The lowest number of treatments given in any one case was four and the highest fourteen.

In conclusion the authors discuss the clinical application of the treatment and the contraindications. ROLA D. S. CORNELL M.D.

**Mondo H. Diffuse Fatal Suppurating Peritonitis Occurring in the Course of Röntgen Treatment in a Case of Fibromyoma of the Uterus. (Péronet, Uppe, d'ffs, m, t, l, nu au us d, u, t, tem, n, d, thé ap, q, h, malad, tte, te de fib, om, té n) B. II. t. m. S. d. k. d. p. 923. l. 54.**

The patient was given roentgen treatment three times without any intrauterine manipulation; the last treatment being given on May 31, 1919, when

she was menstruating. In the night of June 1 she awoke with a sudden sharp pain in the lower abdomen. This was followed by a severe attack of vomiting and calkness. On June 2 she was admitted to the hospital. Her temperature was then 39.4 degrees C. and her pulse 110. Examination revealed distention of the abdomen and diffuse pain on palpation. Some rigidity was present; this was most marked in the left quadrant where the pain was most intense. A diagnosis of diffuse peritonitis of tubal origin was made.

Under general anesthesia exploratory laparotomy was performed. When the peritoneum was opened a large amount of green pus escaped. A fibromyoma the size of a grapefruit was found on the fundus of the uterus; a large ruptured pyosalpinx on the left side and an unruptured pyosalpinx the size of the thumb on the right side. A supracervical hysterectomy was performed with the establishment of abdominal drainage.

The patient died 10 days later. Permission for autopsy was refused and no bacteriological examination of the pus was made.

The author urges more thorough pelvic examination to determine the absence of contraindications before the X-ray or radium is therapeutically used. S. L. ATO E. DI PALMA M.D.

**Reder F. Lesions of the Cervical Stump of a Supravaginally Ablated Uterus. Am. J. Obst. & Gynec. 9. 4. 1. 173.**

If the patient has a family history of malignancy the assumption of the inherited tendency of a constitutional predisposition is sufficient to warrant total hysterectomy. In cases of cervical lacerations which have developed an extreme ectopic condition complete ablation of the uterus should be undertaken.

Women with cervical disease amenable to a plastic operation and still in active sex life should be subjected to supravaginal section as the preferable operation. In these cases a simple but thorough plastic should be performed on the cervix sufficient in scope to remove all of the diseased tissue. Special precautions however should be exercised in equalizing the wound surfaces created by the wedge-shaped excisions in order that good apposition of the newly formed lips may be obtained. Such a cervix after healing is perfectly smooth and healthy in appearance and all that remains of the cervical canal is almost completely obliterated. The removal of the cervical tissue should be as extensive as is judged consistent since it is presumed upon histologic ground that the removal of a large amount of the glandular portions of the cervix proportionately diminishes the chances of subsequent carcinomatous degeneration.

In virgins cancer of the cervix is extremely rare. Because of this fact the cervix should be spared whenever possible in operative procedures for fibroid uterus in young women.

EDWARD L. CORNELL M.D.



The average weight of the thymus was not calculated because this gland reacts to every disease process by a breaking down of its size.

From the average for the suprarenal glands the author concludes that the weight of the glands is not greatly influenced by disease. The fact that the average weights determined were higher than those given by other investigators is ascribed to the hypertrophy of pregnancy as many of the subjects were women who had borne children. In a second table are given the average weights of female glands from the nineteenth to the forty-sixth year of age with reference to the changes caused in the organs by pregnancy.

| Class      | Mean  | Range |
|------------|-------|-------|
| Ovary      | 13.60 | 8.8   |
| Thyroid    | 4.69  | 5.68  |
| Suprarenal | 13.37 | 5     |

In more than one case in which the weight of the ovaries was abnormally high the suprarenal were also unusually heavy but the weight of the other glands was not above the average. Therefore it may be assumed that the ovaries and suprarenal glands stand in a more intimate relationship to one another as regard size and weight than the other glands of internal secretion. The persisting thymus also appears to alter the weight of the suprarenal but in this there is no uniformity. The weight of the suprarenal glands may be below or above the average.

STIEGLER (G)

## MISCELLANEOUS

Meeker W R and Bonar B E Regional Anæsthesia in Gynecology and Obstetrics  
S G Gy & Obs 9 3 x 11 8 6

The more superficial operations on the vulva perineum and anus may be performed very satisfactorily under terminal infiltration. Such operations include the removal of cysts and the old benign tumors of the labia majora and minor. The excision of superficial fistulae perineorrhaphy, surgery of the terminal rectum and the removal of cervical polyp.

In by far the greater number of cases these operations may be painlessly performed by blocking the sacral nerves by injecting an anæsthetic medium into the sacral canal to induce the anæsthesia called epidural sacral extradural or udal anæsthesia.

For the deeper peritonitis on the pelvic floor and viscera the procedure of choice for the induction of local anæsthesia is the combination of 10 epidural injection with transsacral block of the upper four sacral nerves. This procedure gives a uniformly satisfactory anæsthesia in surgery of the pelvic floor and viscera by the perineal route. It has been found

sufficient for posterior resection of the carcinomatous rectum both the one and the two stage resection in which the posterior wall of the vagina may be removed with the growth. Excision of multiple perineal fistulae and malignant growths of the vulva and vagina perineorrhaphy, anterior colporrhaphy, repair of vesicovaginal and rectovaginal fistulae, vaginectomy, amputation of the cervix the Watkins interspersed operation, vaginal hysterectomy and excision of the carcinomatous urethra have been painlessly performed with this anæsthesia. Resection of the bladder may be performed painlessly when held block is added for the suprapubic incision. The borderline of usefulness of the transsacral method is found in posterior resection of a high carcinoma of the rectum or recto sigmoid the Watkins interspersed operation and the Mayo vaginal hysterectomy.

In obstetrics the epidural method is more practical than the transsacral although block of the lower four sacral nerves by the latter technique with the aid of a low epidural injection gives satisfactory anæsthesia. A great advantage of the method is the relaxation of the pelvic floor which is more complete than in anæsthesia induced by any other method.

The for operation version and extraction manual dilatation of the cervix, rotation and repair of cervical and perineal tears may all be painlessly performed with epidural anæsthesia. This type of anæsthesia may be used also for the removal of the uterine contents in incomplete abortions for packing the uterus and for the insertion of the coelocauter.

The pains of normal labor may be controlled by this method although the abolition of the pain reflex takes away also the voluntary effort of bearing down. However as the uterine contractions continue completion of labor occurs painlessly if the parturient is told when and how to bear down.

The greatest difficulty is the selection of the proper time to induce the anæsthesia. In most cases labor could terminate painlessly if the anæsthetic could be administered an hour to an hour and a half before delivery. In the authors experience the maximal value of the anæsthesia is usually obtained when the anæsthetic is given after thirteen hours has elapsed at least in primiparae or at least 4 cm in multiparae.

The value of regional anæsthesia in spontaneous delivery will be greatly increased when a means has been devised which will prolong the action of the epidural injection. Further investigation is necessary on this subject. Possibly the drugs are already at hand which when properly used and combined will anæsthetize the entire pelvic floor and viscera for five or six hours without repetition of the injection. Such an anæsthetic should prove of great value in obstetrics and might become the anæsthetic of choice for normal delivery.



# OBSTETRICS

## PREGNANCY AND ITS COMPLICATIONS

Talbot J E. The Toxæmia of Pregnancy Viewed from the Standpoint of Chronic Sepsis as an Etiological Factor. *Am J Obst & Gynec* 923 vi 709

The placental infarct is the result of hæmatogenous infection of the placental site. Much of the pathology of the products of pregnancy so frequently found in association with toxæmia of pregnancy is in reality dependent on the principle of hæmatogenous infection of the placental site. The author endeavors to show the process by which hæmatogenous infection from foci of chronic sepsis produces the symptoms which go to make up the disease entity known as toxæmia of pregnancy with or without convulsions.

The process involved in reproduction is the most severe physiological functional test which the body has to endure. In pregnancy every metabolic organ is called into play. The demand of the growing fetus is a mobilizer of the organs which supply the chemical compounds necessary for the development of the new organism.

By what process is this demand carried to the organs of the maternal system? The answer raises the mooted point as to whether the metabolic changes in the body are caused by specific hormones alone or whether the sympathetic nervous system plays an important part.

It is the author's conception that the sympathetic nervous system has as its primary function the correlation of the functions of the many metabolic organs and that the blood stream is not merely a mass of chemicals and catalyzers but is assisted by the sympathetic system in maintaining equilibrium in the functions of the organs.

In pregnancy instead of the usual balance between the anabolic and katabolic processes the anabolic processes exceed the katabolic processes. The gradually increasing demand made upon the anabolic process by the fetus is borne in part by the sympathetic nervous system in its function of correlating the work of the separate organs. With this process goes the increased strain on the excretory organs. Some of the strain due to the necessary correlation between the metabolic and excretory functions of the body must also be borne by the sympathetic system.

The process is shown in the production of the toxæmia of pregnancy, the metabolic changes involved in the production of all the other diseases. In pregnancy there is a condition in which a strain is placed on the potential power of the entire metabolic system. Under this strain derangement of the necessary balance between the organs of metabolism

is more readily reflected and there are symptoms which are more commonly found only in the late results of more chronic disease processes such as chronic nephritis. An acute general infection such as a pneumonia in the presence of pregnancy does not produce the symptoms of toxæmia of pregnancy because its effects are brought about not so much by the spotting of bacterial emboli as by a toxæmia which is sufficiently severe and general to inhibit partially or to paralyze the sympathetic nervous system as a whole.

The many different theories advanced as to the cause of the toxæmias of pregnancy are based on the findings in different series of cases. Some obstetricians hold the kidneys responsible and others the liver. Intestinal auto-intoxication and metabolic disturbances have also been regarded as causes. Because of the frequency of disease in the products of pregnancy the cause is believed by many to come from the fetus or the placenta. None of these explanations however has been broad enough to account for all cases.

The author believes that his conception shows how the kidney or the liver may be most involved and explains why constipation is usually associated with the disease. Disturbance of metabolism although not always apparent in the blood chemistry is reflected in hyperstimulation of the sympathetic nervous system. The pathology of the products of conception is explained as damage resulting from hæmatogenous infection of the placental site. Young's theory which attributes the condition to the products of infarct formation is correct only in the sense that the acute infarct may act as a secondary focus for the spread of infection and may be contemporaneous in its origin with damage of similar nature in other organs, the latter being the true cause of the symptoms.

EDWARD L. CORNWELL, M.D.

Mahnert A. The Consumption of Oxygen in Pregnancy and Its Relationship to Prolapsus. *Deutsche Gesellschaft für Schwangerschafts- und Geburtshilfe* (Ekl. mps.) A 4 f. Gy 93 ix 407

In confirmation of the findings of Magnus Levy and Zuntz in investigations made by Mahnert with the Zuntz-Geppert apparatus showed an increase in the respiratory excursions and the total consumption of oxygen during pregnancy. Tests of the effect of the various kinds of food stuffs upon the respiratory quotient in the absorption of oxygen and the elimination of carbon dioxide showed that the albumin diet was not oxidized in the same manner as in the healthy non-gravid woman. The change in process of oxidation in all the intermediary metabolites in the

direction of acidosis. This is expressed in a considerable reduction of the carbon dioxide content of the venous blood and of the combining capacity of carbon dioxide. The lowest values (20 to 22 per cent in contrast to a normal of 30 per cent) were found in cases of eclampsia. These findings tend to confirm the theory that eclampsia is an acidosis.

The fact that the pregnant organism cannot eliminate as much carbon dioxide as the non pregnant organism was shown also by the reaction of the respiratory metabolism to adrenalin. In pregnancy adrenalin causes only a slight increase in the elimination of carbon dioxide. ZWITZ (G)

**Brouha. A Case of Early Ovarian Pregnancy** (L'as de grossesse à l'ine jeun). *Cy et Obst* 1923 411 335

The case reported was that of a multipara 27 years old whose menstrual period in September 1922 was eight days late. On December 25 the patient was seized with violent pain in the abdomen and collapsed. A diagnosis of extra uterine pregnancy was made.

At operation the right adnexa and the left tube were found normal. The left ovary was mobile and on its free border was a round clot about 2 cm in diameter from which blood was issuing. Believing the hemorrhage to be due to a ruptured corpus luteum the author merely resected that particular portion of the ovary. The patient made an excellent recovery.

Examination of the section removed showed it to be composed of corpus luteum and a small lot of blood. On section of the clot groups of cells were found. Some appeared to be multinuclear syncytium and others of the Langhans type. At one point three chorionic villi were seen. Undoubtedly therefore this area was the site of a very early ovarian pregnancy.

The tube on the same side appeared entirely normal; no adhesions nor thickening being present.

SALVA RE DI FALM MD

**Dietrich H A. The Treatment of Placenta Prævia** (De Behandlung der Placenta prævia). *Klin Wchsch* 1923 702

In none of the complications of pregnancy is the danger to life greater than in placenta prævia. In general practice the mortality is 20 per cent; in clinic practice 7.6 per cent; and in cases in which delivery is effected by operation 3.6 per cent. In cases of placenta centralis the mortality in general practice is 35 per cent; in clinic practice 13 per cent; and in cases of operative delivery 3.6 per cent. For the child the mortality is about 80 per cent in general practice.

Schweitzer reports a mortality of 18 per cent in the cases of women examined outside the clinic; 6 per cent of those in which tamponade was used; and 11 per cent in those not operated on and not examined. Only 25 per cent of the women came to the clinic before the amniotic

An examination by the general practitioner is unnecessary as 98 per cent of hemorrhages in pregnancy are due to placenta prævia. In the differential diagnosis the condition must be distinguished from carcinoma of the portio and hemorrhage from a ruptured varix. The latter is extremely rare and not difficult to recognize. If the patient must be transported to the clinic from a considerable distance tamponade must be resorted to in spite of its grave danger. It must be done with great care and with the use of the speculum. Fifty per cent of women with this condition reach the clinic too late. If the physician is summoned because of hemorrhage at the end of pregnancy or during labor he must interfere at once. Usually he does not interfere because the os uteri is not yet dilated and before dilatation takes place the woman may bleed to death. Artificial rupture of the amnion is to be considered only in cases of longitudinal position and strong contractions and only in cases of placenta prævia lateralis. When this method fails a great deal of time and a great deal of blood have usually been lost. Hence care should be exercised in selecting suitable cases. In order not to separate the placenta still further it is best not to work with blunt instruments. The rent should be made with one of the blades of a bullet forceps used as a hook.

Braxton Hicks version is best for the general practitioner. When the foot has been brought down a suture must be attached but this must not exceed 4 kgm. Delivery must be spontaneous as otherwise there is danger of tearing the cervix. On no account must the physician leave the patient until the delivery is complete. The results for the child are better when the cervix is dilated. If spontaneous birth does not follow expulsion of the bag and if there is hemorrhage the child must be turned by the foot. Schweitzer has pointed out that the loss of blood is twice as great in dilatation of the cervix as in version. The bag should hold 600 c cm and have a diameter of 11 cm. It should be placed in position intra-uterinely. The weight applied should be 4 kgm. A disadvantage is that in 80 per cent of the cases a second intervention is necessary. In 65 per cent of 2548 cases reviewed by Hirschmann the third stage of labor ran a smooth course. In the remainder hemorrhages occurred; these were twice as frequent before the delivery of the placenta as after it. In two thirds of the cases the cause was partial adhesion.

Abdominal compressors have been found to arrest the hemorrhage and have rendered superfluous the use of Momburg's elastic tubing which is not without danger. Sehrst's aortic clamp is particularly to be recommended. If the placenta does not separate after the intravenous injection of pituitrin the Credé method should be tried if necessary under narcosis. Not until this has been proved insufficient should manual separation of the placenta be done. Large doses of secale cause lasting contractions.

The anemia is to be counteracted by normal salt solution and analeptics.

Agreement has not yet been reached as to the indication for caesarean section. This is the method of choice in placenta previa totalis and in the case of the elderly primipara with a narrow pelvic uterine canal and a rigid cervix. At the onset of infection is a necessary contraindication. In this procedure the infant's mortality is very low. (Laird, C.)

### LABOR AND ITS COMPLICATIONS

Favilli C. The Action of Fetal Autolysin on the Mechanism of Labor (Sull'azione degli autolizini fetali nel meccanismo del parto). *Sperim.* 1935 LXI: 145.

Beginning with the time of Hippocrates the author reviews the various theories advanced as to what causes labor to start. Almogia in 1921 in a series of experiments on animals noted that the subcutaneous injection of homologous fetal autolysin caused abortion in a short time while the injection of foreign fetal autolysins and of fresh aqueous fetal extract hindered it. He concluded that fetal autolysins have the property of exciting contractions of the uterus in animals of the same species.

Favilli in order to verify Almogia's hypothesis conducted a series of experiments on animals in which he injected especially prepared autolysin fetal and adult material and fresh aqueous extracts.

In eleven experiments on guinea pigs in which injections of homologous and fetal autolysins were used there were three abortions and five labors. In eleven experiments in which foreign (allogenic) fetal autolysins were injected there were three abortions and five labors. In seven experiments in which homologous autolysin fetal extract was used there were two labors and one abortion. In seven experiments in which autolysins were obtained from an adult (rabbit) one labor occurred.

The author concludes that his results do not agree with those of Almogia and that the action of the autolysins was only of a toxic nature and altogether independent of the unknown causes which start labor at the end of pregnancy.

— A. TOEDELMAIER

Irving F. C. Abdominal hysterectomy under Morphin Scopoline and Local Anesthesia (Am. J. Obst. & Gyn. 1935 68: 388).

The local anesthesia is supplemented by morphine and a scopolamine narcosis because it seems a distinct advantage to avoid the psychic element by having the patient oblivious to what is going on and because no cocaine produces its effect better if it is thus supplemented. Only four of the thirty-one patients operated upon by this method had a very recollection whatever of the operation and the others had only a very indistinct impression of it. The technique used is as follows:

At two and a half hours before the operation is begun the patient is placed in a darkened room and her ears are plugged with cotton soaked in

She is then given subcutaneously 1/6 gr. of morphine and 1/200 gr. of scopolamine hydrobromide. The morphine is not repeated but at forty minutes the interval is the same amount of scopolamine is administered until the patient is in a dose. Usually three or four supplementary doses of scopolamine are necessary. When the patient falls asleep a fold of the towel is placed over her eyes and she is taken to the operating room and placed upon the table. A nurse sits by her head and records her pulse rate at frequent intervals but nothing is said to the patient under any circumstances. Absolute quiet is enjoined upon everyone in the room and the rattling of instruments or basins is carefully avoided. At this point another dose of 1/200 gr. of scopolamine is given.

The site of the incision which is begun just below the umbilicus and ends above the pubis is then infiltrated with 1 percent novocaine. A hypodermic syringe with a fine needle is used. With a larger needle and syringe the operator injects the subcutaneous tissue and partially infiltrates the fascia by a series of punctures made downward at right angles to the skin surface. After five minutes the hysterotomy can be begun.

Thirty-one cases have been operated upon by Newell, the author and other members of the staff of the Boston Lying-in Hospital at stages of pregnancy varying from seven weeks to full term. Fifteen viable infants were delivered and all survived. No injurious effect from the morphine and scopolamine upon the fetus has been noted. Babies thus delivered have cried more promptly than those removed from the uterus when the operation was done under ether anesthesia. It is the author's practice to have the infant taken immediately from the operating room lest it arouse the patient.

Deliberate was effected by this method in seventeen cases of heart disease with decompensation. In seven cases previous breaks in compensation had been overcome by treatment. One of the seven patients died of pulmonary embolism in the seventh day after a week of normal convalescence.

There were nine cases in which compensation had not been completely established but delivery seemed indicated to use the patient was losing ground. One patient died from cardiac failure on the seventh day and another who entered with the additional diagnosis of pre-eclamptic toxemia and a blood pressure of 260-160 died of cardiac failure on the third day.

One patient entered the hospital in labor with severe decompensation rapidly growing worse. Abdominal hysterotomy under morphine and scopolamine and local anesthesia was done because it seemed to offer the only possible chance of bringing her through alive but death occurred from cardiac failure at the end of twenty-four hours.

In two cases of cardiorenal disease in which delivery was effected in the manner described there were no deaths.

Of the nineteen patients with heart disease four died a mortality of 21 percent. If the case of death

from pulmonary embolism on the seventh day is deducted the mortality from heart disease was 15.8 per cent. Since all of these patients were extremely poor surgical risks the author believes the mortality would have been high had he adopted any other method of delivery.

No deaths occurred in the remaining twelve cases which were operated upon for the following indications: nephritis three cases, pulmonary tuberculosis three cases, and diabetes two cases. One of the women with diabetes had had a previous cesarean section.

All of the three remaining patients had been delivered previously by cesarean section. One had acute bronchitis and was in labor; the second had bronchial asthma, and the third requested this method to avoid the discomfort of general anesthesia.

LEWIS AND L. CORNELL, M.D.

Hirst J. C. and Van Dolsen W. W. *Low Cervical Cesarean Section*. *J. Am. Med. Ass.* 1941, 13: 13.

The indications for cesarean section may be classified under the following heads:

1. A patient in labor for a considerable time with impossible disproportion between the head and the pelvic inlet or outlet.

2. Ruptured membranes usually with considerable dilatation of the cervix.

3. Many previous examinations.

4. Ineffectual attempts at delivery. These cases are often complicated by prolapse of the cord or of an extremity.

5. Patients on the borderline who are subjected to a test labor before it is decided that cesarean section is necessary. In these cases examination should be made by rectum.

Frequently several of these indications are present in the same case.

Of course the child must be alive and in good condition.

The low cervical cesarean section is devised particularly for cases in which the classical cesarean section would be unduly dangerous. It affords a safe method of delivery when the classical operation might be followed by peritonitis. This is its chief advantage. Others of almost equal importance are summarized by the author as follows:

1. Secure healing results as the wound is in a portion of the uterus which is at rest during convalescence.

2. There are no scars or suture lines to form the site or cause of adhesions.

3. There is no soiling of the general peritoneal cavity by liquor amni or meconium from an area at least potentially infected.

4. If contamination of the uterine wound occurs it is securely sealed extraperitoneally and the drainage is naturally out through the cervix. The lower pelvis is known to be extraordinarily tolerant of infection.

5. There is less shock, less bleeding, and less chance of postoperative complications.

6. There is less danger of rupture of the uterine scar in subsequent labors, and if this should occur it is in a situation in which there is little likelihood of serious complication.

The authors know of no case in their series in which the scar ruptured in a subsequent labor.

In a total of 282 cesarean sections of all kinds 107 were done by the low cervical route. All of the patients were in advanced labor at the time and in a condition unfavorable for the classical operation. Two of them died, one from gangrene of the transverse colon due to mesenteric embolism and one from acute dilatation of the heart due to chronic myocarditis eighteen days after the operation. There were no cases of peritonitis.

EDWARD L. CORNELL, M.D.

## PUERPERIUM AND ITS COMPLICATION

Voron and Grievet. *A Case of Postpartum Fever Caused by Syphilis* (*Ulcus de syphilis febrile apud eum hemit*). *Bull. Soc. de biologie gynéc.* de P. 1923, 11: 53.

A para 1 of 24 years (first child healthy) passed through a second labor without birth injuries. The second child also appeared normal. On the second day after delivery the patient's temperature rose to 102.2 degrees F. Because there had been premature rupture of the membranes the fever was ascribed to puerperal infection, but involution of the uterus occurred normally, pelvic signs and symptoms of infection were absent, and cultures were negative for streptococci. The fever continued for three months and was associated with a decline in the general condition. After the development of intense headaches and the appearance of a generalized eruption a blood Wassermann test was made. The reaction was positive. An injection of neoarsphenamine was followed by rapid recovery.

The author believes the fever was caused by syphilis alone. In this he does not agree with the theory that the fever in such cases is caused by streptococci which are promptly subdued when the body is relieved of the spirochetal infection. In support of his contention he cites the observations of Favre and Coutamin on syphilis as a cause of fever.

ALBERT F. DEGROAT, M.D.

## NEWBORN

Mason R. N. *Spinal and Cranial Injuries of the Baby in Breech Delivery: A Clinical and Pathological Study of Thirty-Eight Cases*. *S. G. J. et al. Obst.* 1923, 1: 82.

Of 142 infants delivered by the breech, eighteen (12.7 per cent) died immediately or soon after birth. The incidence of breech presentation was 3 per cent. Of eighty-seven infants delivered by version and by the breech, eighteen (26 per cent) died immediately or soon after birth.

Of the thirty six infants which died seventeen (47 per cent) had a significant hemorrhage fourteen (38 per cent) fractured vertebrae and 44 per cent intracranial hemorrhage. The intracranial hemorrhages as extensive in only 25 per cent.

Difficulty in delivery of the fetus was experienced in 57 per cent of the fatal cases: difficulty in delivery of the arms and shoulders in 25 per cent and difficulty in complete dilatation of the cervix in 1 per cent. Abnormality of the cord and placenta was noted in 28 per cent. Trauma alone was the probable cause of death in 56 per cent, asphyxia alone in 5 per cent and trauma with asphyxia in 33 per cent. The average time of delivery from foot to head in seventeen cases was seven minutes and from umbilicus to mouth in eight cases four minutes. A dilating bag had been placed in the cervix in 25 per cent of the cases. The pelvis was abnormal in 31 per cent. Fifty per cent of the mothers were primipara.

Birth injury and shock in breech delivery are responsible for a greater fetal mortality and mor-

bidity than a physics. Unnecessary haste in breech extraction prompted by the fear of fetal asphyxia often causes obstetrical complications leading to birth injuries. The diagnosis of death from asphyxia in breech delivery is justified only when there is strong clinical evidence of a physics and none of injury.

The incidence of breech extraction may be diminished by the practice of external version when possible and by a stricter limitation of the indications for version and breech extraction.

The high mortality and morbidity of breech deliveries may be reduced by (1) management of labor and delivery to effect full dilatation of the soft parts, (2) accommodating the long axis of the child to the long axis of the pelvis during delivery and preventing dangerous angulations and (3) accommodating the longest diameter of the body, shoulders and head to the longest diameters of the pelvis thus preventing dangerous traction and suprapubic pressure.

HARRY W. FLECK, M.D.

# GENITO-URINARY SURGERY

## ADRENAL KIDNEY AND URETER

Dobrotowski W M Types of Kidney Malformation (Leber ein-ige Formen von Nierenbildungen) I handl d R Ch A g Ietr d 1923

During the last twenty years in 560 kidney operations performed in Ledoroff's clinic there came under observation three cases of aplasia one case of hypoplasia five cases of horseshoe kidney four cases of double kidney and five cases of dystopia. In this series the incidence of these anomalies was therefore 3.2 per cent whereas pathologico-anatomical statistics show a much lower figure (Naumann 1 per cent Guizetti 0.4 per cent). The conclusion is drawn that approximately one third of persons with such anomalies of the kidneys pass through the hospital.

Aside from tumor and subjective troubles resulting from pressure on other organs etc. the morbidity of the abnormal organs themselves is high. This is due primarily to the abnormal position of the pelvis of the kidneys and the deviated course of the ureters. Hydronephrosis and concretions result. The insufficiency of the abnormal organs results in imperfect elimination of nitrogenous waste bacteria and toxins and predispose to nephritis tuberculosis and pyogenic diseases.

The author paid particular attention to double kidney because of its practical interest and its many transitional forms. He has observed one case in which the groove marking the juncture of the two kidneys was scarcely visible. In another case the separation was so extensive that it suggested an accessory third kidney.

The double kidney always has two pelves. As a rule these do not communicate with each other. The two ureters may unite or proceed separately and enter the bladder by two openings on the same side. Usually however the ureter of the lower half passes to the opposite side of the body as in crossed dystopia. The possibility of disease limited to one half of a double kidney is thus theoretically demonstrated but a very careful study is necessary before such a condition can be recognized and the diseased half extirpated. The diagnosis requires the help of all of the various diagnostic methods including roentgen ray examination with pneumoperitoneum and pyelography. However as these are usually employed only when there are special clinical indications and as such indications may be absent in cases of double kidney any anomaly in the urogenital tract should receive consideration and any malformation elsewhere in the body should lead to a careful examination of the kidneys. The discovery of a double kidney during operation after normal ureters have

been found by cystoscopy places the surgeon in a difficult position for he does not know whether there is a kidney on the other side or not or which portion of the kidney mass is diseased. The following facts offer a solution to this problem.

1. The ureter from the lower half of the double kidney passes to the opposite side of the body when the kidney is missing on that side.

When the two ureters of the double kidney enter the bladder on the same side the medial or medial-caudal entrance to the bladder belongs to the upper portion of the kidney (Meyer Weigert).

Dobrotowski reported a case of hydronephrosis in a woman 55 years of age. The indigo carmine test on the left side was distinctly positive after eighteen minutes and on the right negative after forty minutes. Nephrectomy seemed fully justified. At operation a double kidney was found on the right. Above the single chambered sac formed by the hydronephrosis which was larger than a man's head was a well formed second kidney 7 cm long 3.5 cm wide and from 1 to 3 cm thick. As the indigo carmine test on the left side was satisfactory the double kidney was extirpated. The patient made a quick and complete recovery.

VON DER OTTEN-SACLEN (L)

Burns J E Calculi in the Kidney and Ureter Diagnosis and Treatment St L Clin N Am 9 3 1 685

The author presents the histories of eight cases of calculi in different portions of the kidney and ureter and discusses the methods of diagnosing and treating these conditions.

As ureteral and renal calculi are often mistaken for other abdominal conditions every patient with indefinite abdominal pain should be subjected to thorough urological study before operation is undertaken. Pain on the right side is confused with that arising in the gall bladder the appendix and the right tube and ovary.

While pain is the most common symptom its severity bears no relation whatever to the size of the stone. It is due usually not so much to the passage of the stone as to the back pressure of the urine in the pelvis of the kidney. Very frequently it is accompanied by gastrointestinal symptoms. The latter are often persistent giving rise to rather extreme prostration. In the x-ray examination about 25 per cent of calculi are not seen in the ordinary plates but are plainly made out in the pyelogram.

If the calculus is small enough to pass if the kidney function is good and if there is no infection on the affected side non-operative treatment should be employed. Stones too large to be passed should be removed.

C D Holmes M D



After transplantation of the ureters the bladder is removed whenever the patient's general condition will permit it.

Both ureters were transplanted in twenty eight cases there was one death after the operation Letters of inquiry were sent to the surviving twenty seven patients from time to time The condition of twenty three of the twenty seven is reported

The patients were able to retain urine in the re-tum on an average of from three to six hours some of them were able to retain it over night. Clinical evidence of renal infection was absent there being no pain in the region of the kidney, headache, vertigo, nausea or vomiting. An interval of ten years has elapsed since the first operation in this group that on a child 7 years of age. The child's health has always been good. The ages of the patients ranged from 3 to 30 years but the majority were in the second or third decade of life.

The method is reported not as the only method of treating exstrophy of the bladder surgically, but because it illustrates what can be accomplished by transplantation of both ureters into the re turn

## BLADDER URETHRA AND PENIS

Judd E S and Scholl A J      Diverticulum of the  
Urinary Bladder      S      C n      E      C b l      194

In the earlier cases of diverticulum of the urinary bladder treated surgically the condition is often discovered accidentally and the operation is carried out without consideration of the complicating lesion and at times without consideration of the kind of infection. The mortality was high and the operative results were only fair. Recent methods of urological diagnosis however make it possible to recognize the disease the associated lesion and the infection and suggest the type of surgical procedure which will give the most satisfactory results in every case.

Vesical diverticula are probably due primarily to embryological defects in the bladder either a c k  
ening of the musculature usual at the b e c k  
bladder or a definite hiatus in the wall of the b l d r  
The actual distention and dilatation of the ac probably  
result in most cases from obstruction to the  
outlet of the bladder

The most common cause which generally occurs in old men and produces distention and dilatation of the diverticular sacs is obstruction of the neck of the bladder due in most cases to an enlarged prostate or contraction of the neck of the bladder.

One hundred and thirty three of the 150 patients with a confirmed diagnosis of bladder cancer were studied. The patients were divided into two groups: 100 patients who had undergone a radical prostatectomy and 33 patients who had undergone a transurethral resection of the prostate. The patients were divided into two groups: 100 patients who had undergone a radical prostatectomy and 33 patients who had undergone a transurethral resection of the prostate. The patients were divided into two groups: 100 patients who had undergone a radical prostatectomy and 33 patients who had undergone a transurethral resection of the prostate.



Hyperplastic hypertrophy of the prostate presents much that is still unexplained. Numerous autopsies and the study of the internal secretions have not added much to our knowledge. It is known however that in hypertrophy there is atrophy of the glands with hypertrophy of the rudimentary glandular portions and that in atrophy the latter is absent. Two types of hypertrophy can be distinguished: the endovesical or hypertrophy of the middle lobe and the subvesical or hypertrophy of the lateral lobes.

With regard to the conditions in which operation is indicated, opinions differ. The question of age and social status, the progress of the enlargement, the condition of the kidneys and the bladder must all be taken into consideration. Renal function is determined by the water and electrolyte concentration test, the indigo-carmin test and the determination of the freezing point of the blood. Renal function is often improved after the establishment of vesicostomy. In cases of retention a radical operation should not be performed immediately.

When operation has been decided on, there is a choice of the suprapubic or the perineal route. The statistics of operations performed in situ at the moment of diagnosis refer to the suprapubic route. Kuttner has collected 5200 cases of suprapubic operation with a mortality of 8 per cent and 800 cases of perineal operation with a mortality of 6 per cent. In spite of the fact that the mortality of the perineal operation is somewhat lower, Kuttner still prefers the suprapubic procedure. It is a safe operation if performed by the experienced surgeon.

It is true that the method of suprapubic prostatectomy presents an improvement in the perineal operation but its disadvantages are a greater risk of infection, the return, persistence of vesicostomy, failure in continence and an unfavorable effect on the sex function. The latter is not uncommonly observed in the suprapubic operation. Kuttner refers to the fact that the suprapubic method arrived at in two stages is usually the best procedure but that if the result is a suggestion of tumor or other complications the perineal route according to Volcker is preferable. He does not agree with Taylor that a severe prostaticitis is an indication for the perineal operation. If necessary, patients can leave the hospital earlier after the suprapubic operation as after the perineal.

Widening of the vesical fistula is often sufficient in the suprapubic operation. Operating up with minimal incisions may cause severe pain. Some time the wound does not take place. Operation widening is dangerous. In such cases the perineal method must be chosen. Usually the operation can be carried out under spinal anesthesia. Local anesthesia alone is not sufficient. The abdominal wall may be infiltrated for the skin incision and narcosis induced later. After the bladder wall has been opened the finger is introduced into the rectum and the prostate pressed forward gently. This is necessary throughout.

After the operation a narrow tube is introduced and left in place for twenty-four hours. If the flow

from the fistula has not diminished after eight days a permanent catheter is inserted.

Following a brief discussion of the various perineal methods (Volcker, Wulms, Berni, Leisler) Kuttner stated that in some cases particularly in cases of carcinoma of the prostate the two methods may be combined. Other procedures such as ligation of the vessels and resection of the vas deferens have received little attention as compared with prostatectomy. In atrophy of the prostate prostatectomy without hypertrophy the diagnosis is often very difficult and can be made only by exclusion. The condition occurs in early life. The cause of the symptoms is a degeneration of the sphincter. Bottini's operation of internal urethrotomy may be the procedure of choice.

The prognosis of carcinoma is very unfavorable. There are five cases of hypertrophy of the prostate. Three types can be distinguished: (1) the type which remains for a long time intracapsular, (2) the very malignant type which extends to the surrounding parts, (3) the type which spreads in multiple nodules.

The third type is usually discovered first at operation. The first improvement of the operative result which is usually very poor (mortality 23 per cent) and the diagnosis is of great importance. The diagnosis can be made earliest by cystoscopy. The result is very unsatisfactory.

DEBETI & CO

#### Barnes J. D. and Gilbert A. C.: Symptomatic Observations on Cancer of the Prostate. *B. J. Urol.* 1924, 20.

Of a series of thirty cases of prostate cancer, twenty-two per cent were malignant. An early diagnosis is therefore imperative. While the outcome is usually unfavorable, a favorable result is obtained within a short time of the diagnosis. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands.

In a series of thirty cases, twenty-two per cent were malignant. An early diagnosis is therefore imperative. While the outcome is usually unfavorable, a favorable result is obtained within a short time of the diagnosis. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands. The cancer is usually found in the prostate gland, but it may be found in the ureters, bladder, or in the lymphatic glands.

but it should be used very carefully Deep X ray therapy is indicated in all cases

In conclusion the authors emphasize the following points

1 Cases of cancer of the prostate are usually seen at an earlier age than those of adenoma In the former the urine is clearer the kidney function is better and the general condition is very good In some cases however the urinary symptoms may be very slight and the general condition very poor

2 X ray plates of the skeleton should be made as a routine measure

3 Less extensive operations are indicated when metastases are present

4 Surgery offers more than radium alone but the two combined are often very helpful Deep X ray therapy will often relieve pain and inhibit growth

5 Rectal examination should be made in the case of every patient past middle age

CLAUDE D ICKRELL M D

Hilman F and Gibson T E Tumors of the Epididymis Spermatic Cord and Testicular Tunics A Review of the Literature and a Report of Three New Cases *Am J Surg* 94 100

A case of fibroma of the spermatic cord and two cases of epithelial neoplasm of the epididymis are reported because of their unusual features and their extreme rarity and a comprehensive classification of tumors of the spermatic cord epididymis and testicular tunics is submitted A review of the literature shows that of the tumors involving these three structures those involving the spermatic cord are the most common constituting 90 per cent of the entire group Of the individual types of tumors lipomata are found most frequently and sarcomata are next most numerous Dermoids fibromata and myomata are third in order of frequency

Lipomata must be differentiated from hydrocele The latter is much more common and may contain a peritoneal sac which at operation is a source of danger Sarcomata represent at least 24 per cent of all cord tumors The clinical picture resembles that of teratoma testis Usually they apparently arise from benign conditions

Fibroma of the cord occurs about one third as often as lipoma In most cases it apparently arises from the cord near its junction with the epididymis Trauma is rarely mentioned as a factor Myoma and leiomyoma are extremely rare in the cord

Dermoid cysts are of approximately the same frequency as fibroma They are all of the simple type Their origin is difficult to explain

In the epididymis sarcoma is again the most common neoplasm at least ten authentic cases having been reported Only one case of lipoma six of leiomyoma and four of carcinoma may be considered as authentic

No authentic cases of dermoid fibroma or myxoma were found in the literature

Four authentic cases of fibroma of the tunica albuginea are tabulated No sarcomata are reported A single authentic case of lipoma of the tunica vaginalis has been found About thirteen cases of fibroma two of rhabdomyoma and twelve of sarcoma of the tunica vaginalis have been reported Epithelial neoplasms are extremely rare two cases of adenomatous tumors and another reported as lymphangio endothelioma are probably the only authentic cases of growths of this nature

Particularly significant is the relative frequency of malignant growths in the spermatic cord epididymis and testicular tunics Sarcoma is the type most frequently encountered in these structures as a whole

Lipomata and dermoids commonly occupy the inguinal canal while other types of tumors are generally intrascrotal Malignant tumors however follow the course of testicular tumors and metastasize to the same primary lymph zones retroperitoneally along the aorta and vena cava

LOUIS NEUWELT M D

## MISCELLANEOUS

Beer E Chronic Retention of Urine in Young Boys *Am J Surg* 194 LXI 264

In chronic retention of urine in young boys from obstruction at the neck of the bladder there is nocturnal and diurnal enuresis possibly with straining at urination Dribbling occurs frequently It is perhaps accompanied by pain over the bladder and in one or both kidneys may be permanent Chronic sepsis is associated with deterioration of the general condition and a pallor resembling that of chronic nephritis If a sufficient amount of the kidney parenchyma is destroyed renal insufficiency develops The urine may or may not be turbid and may or may not be passed in a fair stream The hypogastrum reveals a tumor which is the enlarged distended bladder containing residual urine The mass may be asymmetrical When infected it may be tender and if deflected to the right side may suggest an abscess of the appendix

Pathologically there is no obstruction in the posterior or anterior urethra The bladder is greatly hypertrophied and pouched one or both ureters are distended and one or both kidneys are hydro-nephrotic or pyonephrotic The spinal cord shows the so called inflammatory infiltration near the anterior horn cells or there may be delayed myelination The neurological findings are not conclusive

LOUIS NEUWELT M D

Young H H Urinary Antiseptics *J Urol* 924

Urinary infection is by no means simple In infection of the lower urinary tract the prostate seminal vesicles vas deferens epididymis testis tonsils sinuses or colon may cause re-infection of the urinary tract In the treatment of the local lesion the

adnexa such as the kidney tubules prostate seminal vesicles and epididymis must be considered before permanent sterilization can be expected

In the selection of antiseptics their germicidal strength toxicity irritability coagulability in serum urine and body fluids and penetration must be considered. The antiseptic drugs in general use vary greatly in these respects

Merocyl is more powerful against the colon bacillus than against the staphylococcus. Next to merocyl mercuraphen is the most active antiseptic in serum in one minute exposures with the staphylococcus. Next in order is mercurochrome

Against the gonococcus merocyl is far more powerful than all other antiseptics. The next most effective is mercurochrome

As regards gonococcal infections Young states that several of the new antiseptics and particularly merocyl are agents which may be of great value. Most of these drugs cause little or no irritation when used in the proper strength and practical experience shows that all urethral injections and irrigations should be fairly dilute

Silver nitrate has retained its position because the pronounced reaction which it sets up produces hyperemia and gives results which are not to be explained by germicidal activity. As it does not penetrate it is most valuable for surface applications

Penetration is of great importance. Therefore although merocyl shows a wonderful germicidal power it is not in many cases as effective as mercurochrome

In the treatment of infections of the lower urinary tract the author almost invariably treats not only the bladder but also the prostate and seminal vesicles. His usual plan is to massage the prostate and vesicles three times a week and then irrigate the bladder by hydraulic pressure with 1000 merocyl and after this is followed by inject 1 per cent mercurochrome into the prostatic urethra. In some cases the mercurochrome is injected through a urethroscope into the ejaculatory ducts ampullae and vesicles

Young states that mercurochrome is of value when given intravenously not only because of its action on the urinary antiseptic but also because of its effect upon general infections. One of his cases is diagnosed

as colon bacillus pyelitis was sterilized by one intravenous injection of 40 c.c.m. of a 1 per cent solution of mercurochrome (5 mgm. per kilo of body weight). It is interesting to note that in this instance dead bacilli were found in the urine for three days and that subsequently no bacilli were found either on slides or in cultures. A case of pyelitis due to bacillus coli was similarly cured by one intravenous injection of mercurochrome but the others were not sterilized although greatly benefited. Later one of these cases was given 0.6 gm. of neourphenam and the infection then promptly disappeared and the urine remained sterile

Young says that the use of arsphenamid has been previously reported. One of his cases was that of a child with a very severe colon bacillus infection of the kidneys associated with high fever for many weeks. The intravenous injection of novarsenobenzol was followed by quick recovery. However in other cases with the same organisms no results were obtained by this treatment. LOUIS GROSS M.D.

Minet H. and D. Bains F. The Present Status of Vaccin and Serotherapy in Gonorrhoea (Etat actuel de la vaccination et de la sérothérapie gonoréique). J. d. Méd. et Ch. 93, 33

Warm aqueous vaccines are the most efficacious. The coagulation of the antigen assures their regular diffusion. The concentration must be strong, varying from two to six billion organisms per cubic centimeter but the dosage must be increased progressively and gradually. The best method of giving the vaccine is by subcutaneous or intramuscular injection. Whether a monovalent or polyvalent vaccine is employed it must be prepared from a stock with a known antigen value. The most common secondary invaders are staphylococci and the pseudo-diphtheria bacillus. These may be incorporated in the vaccine

To obtain a therapeutic result with chemiotherapy it is necessary to compute not only the antigen value of the vaccine but also the reactions of the patient. A patient who does not react to the antigen given will receive no benefit from a vaccine containing it. The antigenococcus serum prepared by the Pasteur Institute has yielded remarkable results in the treatment of general infections. It is administered subcutaneously or intramuscularly.

LOYAL E. DAVIS M.D.

# SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS

## CONDITIONS OF THE BONES JOINTS MUSCLES TENDONS ETC

Roederer C. Bone Cysts with the Exception of Hydatid Cysts (Le kyst s d k y t s h y d i t i q u e e c e p t é s) *Rev d orthop* 1923 5

This article of more than fifty page deal with cysts that are usually solitary and have been variously described as essential cysts benign bone cysts solitary cysts and fibrocystic osteitis of the long bones

Roederer finds that the confusion due to the classification of fibrocystic osteitis of the long bones with true bone cysts may be traced to the domination of the ideas first of Virchow and later of von Recklinghausen and von Mikulicz

The essential nature and formation of cyst remain unquestioned. The theory which attributes these cysts to a purely trophic disturbance of nervous or endocrine origin is plausible but has not been proved. The hypothesis which refers them to chronic periostitis is not in agreement with many well recognized facts but has the advantage that it does not exclude predisposing traumatic cause and the influence of specificity. Certain recent findings support this hypothesis. It is probable that the essential cysts may be produced by more than one influence

In many cases treatment by partial amputation followed by curettage is sufficient. Filling of the cavity with grafts of fat or muscle probably will but fracture may be prevented a plaster of Paris cast hastened by the implantation of a periosteal graft W A Br

Klugh G F. The Finding of Spirochetes Pallidum in Osteomyelitis by Dark Field Illumination with a Report of Three Cases *J M I* 1924 43

In the three cases reported operation failed to effect a cure. Examination by dark field illumination revealed spirochæta pallida. Klugh states that this organism can be detected in the blood and describes the technique employed. The Wassermann reaction as negative for all three patients. A cure was obtained by specific therapy I J B M D

Voß Josseland G. Non Cystic Osteitis Fibrosa in the Young (Su i t é t i l k i t d j u n e u j t) *Rev d orthop* 4

The author reports two cases of osteitis fibrosa in children. That the nature and different stage or form of the disease producing true bone cyst is indicated by its location in the end of long bones most common the femur and humerus

its occurrence in children the similarity of its symptoms to those of the cyst forming disease its benign course the presence of fibrous metaplasia of the marrow and cartilaginous islands the occasional association of cysts and fibrous masses and the tendency to bone resorption

Slesinger believes that bone cysts always have their origin in solitary undergoing degeneration. In the case of a morbid entity a bone cyst is probably an accessory element or represents an evolutionary stage in a disease characterized by alterations of bony tissue fibrous metaplasia of the marrow and bone resorption

In non cystic osteitis fibrosa the fibrous mass is surrounded by a thin layer of cortex covered with normal periosteum. The limits of the diaphyseal side may be somewhat confused with the normal diaphyseal tissue. The author cites several cases of cystic osteitis fibrosa that healed spontaneously within a period of a year

Local osteitis fibrosa in young subjects closely resembles both anatomico-pathologically and clinically other skeletal diseases occurring in the young which for some time have been regarded as distinct entities viz. coxa vara of adolescence, osteochondritis and arthritis deformans of youth. These conditions appear at the same age occur most frequently in the end of the long bones particularly the upper end of the femur have the same insidious evolution reversible peculiarly by deformities which result from weakening of the bone with curvature or fracture and have the same tendency to heal. The X-ray shows areas of decalcification of the bone arising in form and extent but no periosteal reaction. Microscopic study always reveals fibrous marrow and inactive decalcified bony tissue with a tendency to become organized. Transition forms may be found between the typical varieties

WALT R C BURKITT M D

Beyer H L. The Differential Diagnosis Between Infection of Bone and Sarcoma of Bone *J I S S I M S* 1921 495

This article is based on a study of seventeen cases of sarcoma of bone and twenty cases of pyogenic infection of bone

Emphasis is placed upon the necessity for a careful analysis of the symptoms physical findings and laboratory examinations before a diagnosis is made. Subacute and chronic pyogenic osteomyelitis tuberculo is an abscess is the infections of bone that most closely simulate sarcoma

The author discusses the age incidence and the incidence of trauma pain swelling fever tenderness and involvement of more than one bone in sarcoma and conditions resembling it

A Wassermann test should be made in all case and a tuberculin test should be made whenever tuberculosis is suggested

Aide from a section for microscopic study the X ray plate is the most important evidence obtainable

Fine indefinite and irregular lines of bone radiating out from the periosteum and becoming lost in the indistinct borders of the soft tissue are characteristic of osteogenic periosteal sarcoma

Aspiration of a suspected tumor and of the tissues surrounding it is frequently of value If pus is obtained the diagnosis of infection may be made if blood sarcoma is suggested

In some cases a differential diagnosis may be impossible without exposure of the pathological process If the gross pathology is not definite microscopical sections must be made

HEAM & CROMBIE M.D.

Lewin P. and Jenkinson E. I. Chondrodysplasia Imperfecta—A chondroplasia—Chondrodysplasia Fetalis (m. J. R. nig. of 93 xi 55)

The authors report six cases of chondrodysplasia imperfecta and the observations made in thirteen dwarfs and fifty nine mice. A brief summary of the article is as follows:

A midget is a man or woman looked at through the wrong end of the opera glass that is diminutive but not deformed. Dwarfism (chondrodysplasia fetalis) is a condition of abnormal fetal development of cartilage. It occurs also in the lower animals. The most probable theory of its etiology is that of Jansen, i.e. that a small amniotic sac is the normal embryonic infolding and hyaline capsule surrounding the fetus or sixth week of fetal life. An increase weakens the growth of the cartilage cells. The cardinal sign is the disproportion between the normal body length and the short extremities. Other characteristics are an excess of skin and fat in folds and pigmentation. The hands are short and chubby and the fingers of nearly equal length. In man, off the metacarpals like the spokes of a wheel. Prominence of the abdomen and exaggerated lumbar lordosis are almost constant. The roentgenological evidence is most marked in the epiphyses and epiphyseal cartilages especially those of the long bones. The appearance of the periosteum seems to show no change.

The article contains eight illustrations and a bibliography. R. C. LOEB & M.D.

Bristow W. R. A Case of Snapping Shoulder. J. B. & J. S. G. 924 53

The case reported was that of a woman 31 years of age who was injured by a fall on the shoulder fifteen years previously. Disability and weakness of the arm persisted for about eighteen months. The patient consulted Bristow because of a painful snap in the region of the shoulder which occurred whenever she used her arm in an abducted position. The pain usually lasted for about twenty-four hours.

Exploratory operation revealed muscle fibers arising from the outer side of the short head of the biceps and extending downward and outward to the long head. Abduction and rotation of the arm demonstrated that this fleshy muscle rode over the tuberosity. Removal of this part of the muscle was followed by uneventful recovery.

The muscle was found to be the rotator humeri, a constant muscle in lower mammals and a common abnormality in man.

FRANK G. McFEE M.D.

Tristant A. A Case of Bilateral Congenital Synostosis of the Upper Part of the Radius and Ulna (Sur un cas de synostose radio-cubitale supérieure bilatérale). (Gé. tale). Rev. d'orth. 93 459

Synostosis of the upper part of the radius and ulna is one of the rare congenital malformations of the arm. It consists in union of the radius and ulna where they cross each other in pronation. Up to 1914 seventy-three cases had been reported and since then a few others have been added.

Tristant reports the case of a boy 5 years of age who had a large congenital inguinal hernia on the left side and other malformations. X-ray examination revealed synostosis of the upper end of the radius and ulna for an extent of 2 cm. In the great majority of the reported cases congenital syphilis seems to have been a factor but in this case no evidence of syphilis was found.

The only functional disturbance caused by the condition is immobilization of the limb in position between pronation and supination.

There are two distinct types of this deformity: viz. radio-ulnar synostosis with and without dislocation of the head of the radius. Synostosis without dislocation is characterized by absence of deformity of the wrist and absence of functional disturbance of the movements of flexion and extension of the elbow or only slight limitation due to the presence of osteophytes. The latter are revealed by the X-ray. Synostosis with dislocation causes a pseudo deformity of the wrist due to deviation of the axis of the bones of the forearm and functional impotence in extension and flexion of the elbow.

W. A. BRENNAN

Couzon O. Cervical Ribs and Hypertrophy of the Transverse Cervical Processes. Description of the Sixth Cervical Vertebra (Côte cervicale hypertrophée des processus transversaires de la sixième vertèbre). (Côte cervicale). P. 93 xi 1969

The sixth cervical vertebra at the base and anterior part of its transverse process presents constantly a supernumerary costal point which appears in the sixth fetal month unites with the body of the transverse process in the sixth year and by excessive growth may form a seventh cervical rib. Rarely there is an analogous costal point on the sixth fifth and even the fourth cervical vertebra. The

location of the costal point corresponds to the site of the development of the rib on the dorsal vertebrae.

Of seventy cases studied in the X-ray laboratory of the Salpêtrière five had equal development of a transverse process and cervical rib. Only one showed a cervical rib and a normally developed process and eight an enlarged transverse process and an attached cervical rib. In fifty six cases only a hypertrophied transverse process was discovered and in the majority this was bilateral. Unilateral hypertrophy was found in only seven cases. In five the process appeared triangular in nine it was of the shape of an elongated tooth in eight it was hook shaped the hook being turned down in three in forty five cases the process was enlarged as a whole and thick. In twenty one cases the hypertrophied process caused pinching. A few subjects had senile spondylitis with cervical sinking causing approximation of the transverse cervical and dorsal processes.

In eleven cases which were operated upon the nerve roots were found pinched by the processes. Occasionally the root was lifted up like the strings of a violin by the bridge and as a result was covered by fibrous bundles.

There are two distinct malformations (1) the hypertrophied transverse process (2) the cervical rib which articulates with the vertebral body and the large transverse process. The association of these two congenital malformations constitutes dorsalization of the seventh cervical vertebra.

In forty five cases which could be followed clinically the author found hypertrophied transverse processes and cervical ribs at all ages but most frequently in persons in middle life. Only thirteen of the forty five patients were males (Salpêtrière receives a greater number of women). In only two cases was the cervical rib discovered by palpation. In the majority its presence was suggested by disturbances in the arm. In twenty cases the symptoms were bilateral.

The pain may be most severe on the side of the least developed rib. In two cases the onset of symptoms was abrupt. In all there were subjective sensory disturbances such as pricking sensation and usually these were diffuse. Complaints of numbness were rare.

Objective sensory changes were unusual in seven cases there was diminution of sensation with a root distribution in four pain on pressure on the nerve trunks of the upper extremity and in one a true astereognosis. Motor trouble was seldom noted.

Most patients had functional trouble the arm felt heavy and there were disturbances in the function of the thumb and of the index and middle fingers. In seven cases there was segmentary diminution in the force of the forearm and in two a bilateral cubital girdle. There was muscular atrophy of the hand in six of the first interosseous space in one of the thenar eminence and the interossei in one and of the arm and shoulder in two. In two cases there was spasmodic torticollis.

Radial and olecranon reflex disturbances were rare and variable. Generally the tendon reflex was weaker on the side of the subjective disturbances. In four cases there were electrical reaction changes. In four others vascular trouble was indicated by coldness of the hand or disturbance of perspiration the hand was sometime pale and sometimes red or violet. Eleven cases showed asymmetry of arterial tension which was either increased or decreased on the side of the lesion.

Sympathetic nerve changes were indicated in eight cases by pupillary disturbances and in two by enophthalmos on the side of the lesion. No difference in the color of the two sides of the face was noted. In only one case was the pilomotor reflex diminished on the side of the lesion. The oculocardiac reflex was usually normal. In the case of one very emotional patient pressure on the eyeball caused the pulse to fall from 72 to 38. In another case the reflex was reversed. Adrenalin and pilocarpine tests were not conclusive but in one case pilocarpine caused sweating which was more marked on the side of the most active disturbance.

The disturbances consequent on root phenomena or paraplegia of cervical origin at times give rise to the syndromes of amyotrophic lateral sclerosis, cervical Pott's disease, cervical spinal fluid, psychoneuropathic edema or syringomyelia.

The operative treatment consists in resection of the hypertrophied transverse process and the cervical rib and dissection and removal of fibrous adhesions compressing the nerve roots. Surgical interference results generally in very rapid regression of the sensory and electrical disturbances and the claw hand. The indications for surgical intervention are muscular atrophy, electrical disturbances, important vasomotor changes and unbearable persistent sensory troubles.

The author draws the following conclusions:

1. To the conception of cervical rib should be added that of hypertrophy of the seventh cervical transverse process.

The syndromes of cervical ribs and of hypertrophied transverse processes are the same and consist chiefly of subjective disturbances of the upper extremities. The X-ray completes the diagnosis. Hypertrophy of a transverse process occurs more often than a true cervical rib. In old persons the presence of a spondylitis with sinking associated with cervical rib or transverse process malformation (congenital) explains the slow appearance of the symptoms.

3. In cases of persistently annoying or intolerable disturbances surgical intervention gives very satisfactory results. WALTER C. BUCKET, M.D.

Desfosses P. and Mouchet A. Absence of the Sacrum and of the Last Two Lumbar Vertebrae (Absence of sacrum and of the last two lumbar vertebrae). *Revue d'orthopédie* 1914, 11, 61.

The patient a girl aged 7 years was a full term child with breech presentation. The head and



The patient a man 41 years of age was struck on the left knee by a stone. Swelling and pain began and in three weeks he was obliged to stop work. At the end of seventeen weeks the entire thigh was swollen and motion was very difficult. The left leg was hard oedematous and enlarged especially over the inner aspect of the lower part of the thigh. The blood count Wassermann test and urine were negative. The roentgenogram showed an eroding tumor in the lower end of the femur with probable calcification in its capsule. The thigh was amputated at the upper third and the remaining upper end of the femur was disarticulated.

Microscopic examination of the dark red cystic gelatinous tumor on the lower end of the femur showed elongated or spindle cell many large typical giant cells and spicules of bone on the periphery.

One month after the operation the patient suddenly complained of abdominal pain lost consciousness became cyanotic and died. At autopsy a giant cell sarcoma was found in the left femoral vein and a secondary thrombosis in the external iliac vein and the inferior vena cava. The histologic structure of these growths was identical with that of the original tumor. It is therefore concluded that they were true metastases in the femoral vein from the bone tumor which was a typical giant cell tumor of the epulis type.

WILLIAM A. CLARK M.D.

Clayton C. F. Internal Derangements of the Knee Joint. *Trans. St. J. M.* 923, 1, 446.

The author first describes in detail the anatomy of the knee joint.

Traumatic synovitis is characterized by pain, tenderness, effusion and a history of injury. The treatment consists of bandaging preferably over wool and the application of an ice bag for twenty-four hours. If the swelling does not begin to subside within forty-eight hours after the injury a puncture is advisable.

In sprains of the internal lateral ligament which are characterized by definite pain, tenderness over the attachments of the ligament and nowhere else the treatment should consist of rest in bed with a posterior splint and later firm bandaging with elevation of the inner border of the foot to prevent tension on the ligament.

When the knee is flexed and the foot inverted the internal lateral ligament is relaxed and the internal semilunar cartilage is drawn into the center of the joint beneath the most prominent part of the mesial condyle of the femur. If the leg is fully extended the cartilage is caught beneath the condyle and crushed against the tibia. The cartilage may be torn loose at its anterior extremity, split longitudinally or torn across.

The differential signs of a torn cartilage are severe pain, firm locking, effusion and a negative X-ray picture.

The internal cartilage is injured much more frequently than the external.

If the case is seen soon after the injury to a cartilage while the knee is still locked the first step is reduction of the displaced cartilage and extension of the knee. If reduction is successful the joint should be immobilized in extension in a plaster cast for at least four weeks. If reduction is impossible or if after reduction locking occurs again the cartilage should be removed. After operation a posterior splint should be worn for two or three weeks. After ten days passive motion may be instituted. Walking may be begun after two or three weeks and full exercise resumed after eight weeks. As atrophy of the quadriceps extensor is common after all serious derangements of the knee joint steps to redevelop the atrophied muscles are an essential part of the after-treatment. Rupture of the crucial ligaments may occur in severe injuries to the knee. If the case is seen early it should be treated by prolonged rest with the knee in extension. Operative repair of the crucial ligaments has been done but is not popular.

Fracture of the spine of the tibia is characterized by pain in front of the joint beneath the patella and interference with extension. The condition is verified by the X-ray. If the joint can be extended the treatment should be prolonged extension if this is impossible excision of the tibial spine followed by prolonged immobilization in extension is indicated.

In injuries to the retropatellar pail of fat a brace limiting extension about 30 degrees should be worn. Loose bodies are not uncommon in the knee. They may be due to (1) detached portion of a loose cartilage (2) osteochondritis dissecans (3) detached marginal osteophytes in hypertrophic arthritis or (4) osteochondromatosis.

The symptoms of loose bodies are those of a mechanical derangement of the joint. The X-ray is of very great aid in the diagnosis. The treatment is usually surgical.

The author then discusses the technique of operations for derangements of the knee joint. Preparation for operations should be thorough. An antero-medial incision is used for the removal of the internal semilunar cartilage.

For the repair of a ruptured internal lateral ligament the procedure of choice is that of Wilton in which a strip of fascia lata is employed.

For the removal of loose bodies in the anterior compartment and for inspection of the crucial ligaments the split patella incision is the one of choice. For the removal of loose bodies in the posterior compartment the posteromedial and posterolateral incision as developed by Henderson should be employed.

In all operations involving the opening of the knee joint a tourniquet should be employed.

HERMAN SCHUMM M.D.

Laoyenne Hollow Foot (Le pied reux). *Rev. d'Orth.* 9, 3, 512.

Hollow foot may be the result of equinus or calcaneus deformity, hammer toes or metatarsus arsus.



Retraction of the plantar fascia section of the Achilles tendon nervous affections and p. n. a. b. i. d. a. o. c. u. l. t. a. are other causes of the condition.

The cause of so called essential hollow foot is unknown. Apparently this condition begins in early adolescence and produces progressively greater disturbances in walking with pain and eventually ulceration.

The paralytic hollow foot is usually a calcaneus foot. The foot deformity is only partly responsible for the disability; the paralysis and loosening of the joint being the chief factors.

Besides conforming to the general indications of the treatment of infantile paralysis the treatment of paralytic hollow foot ought to include arthrodexis and tenodesis. Restoration of the form of the foot such as may be obtained by osteotomy on the great tuberosity of the os calcis is not sufficient.

The treatment of essential hollow foot should be undertaken only after a careful neurological and roentgenological examination. According to the extent of the lesion it should consist in section of the retracted soft plantar tissues or in a cuneiform osteotomy of the articular surfaces of the Lisfranc or Chopart type.

W. A. BRENNAN

## SURGERY OF THE BONES JOINTS MUSCLES TENDONS ETC

Beyle H. I. Subperiosteal Resection of Long Bones in Osteomyelitis. An Analysis of This Method of Treatment with a Report of Five Cases. *Am. J. Surg.* 67:3 1-73.

The reported results of subperiosteal resection of the long bones in osteomyelitis have not been sufficiently convincing to warrant the choice of such an operation in preference to more conservative measures. Beyle calls attention to three fundamental errors involved in this procedure:

1. The impossibility of determining accurately the extent of necrosis of the shaft. Because of this live bone may be removed with the diseased bone. The attachment of periosteum to the bone is presumptive evidence of its vitality and complete separation of periosteum does not necessarily mean that that portion of the shaft will sequester. On the other hand the infected shaft serves to maintain proper length, prevents angulation, bending and pathological fracture and stimulates the formation of bone.

2. Occasional failure of complete restoration of the shaft from the remaining periosteum following the resection. In such cases further operative work is necessary to bridge over the gap.

3. The danger of resulting deformity. There may be definite shortening of a new shaft which has been very slow in regenerating. This would be more marked in the femur or the humerus where there is no adjacent bone to act as a support. It is very difficult also to prevent bowing. Shortening may result from injury to the epiphyses following resection.

Beyle reports five cases in only one of which a case of osteomyelitis of the femur was there sufficient regeneration of bone for weight bearing. In the four other cases with osteomyelitis of the tibia further operation was necessary to cure the infection.

REIDOLPH S. REICH, M.D.

Elm. H. R. C. Verrall, P. J. Platt, H. and Others. Discussion on the Operative Treatment of Osteo-Arthritis. *B. J. M. J.* 30:1 206.

FUSLIE. Arthritis leformans is characterized by a tendency to chronicity and the production of more or less permanent changes in the joints or structures about the joints. Forms of arthritis with a definite known etiology (for example gonorrheal arthritis) are excluded from this classification unless they are chronic and deforming.

The most important causative elements are (1) infection of the joint with a micro-organism of low virulence (2) toxæmia possibly from a bacterial or a chemical poison (3) trauma, including not only direct damage to the joint structures but also the reaction to an abnormal strain and interference with the proper fit of the joint surfaces resulting from an old injury or deformity.

Surgery has a very definite place in the treatment of arthritis deformans but must always be secondary to a careful medical investigation and treatment of the primary cause.

The first steps in the treatment should be (1) the determination as far as possible of the presence of a specific infection or toxæmia (2) the determination of the presence of a mechanical cause (3) the treatment of any infection or toxæmia and (4) the treatment of the more acute periods of inflammation by rest.

The operative procedures which may be utilized are (1) operations to correct pre-existing deformities such for example as osteotomy for the correction of genu valgum (2) operations to remove an intra-articular cause of the arthritis as for example the removal of a loose body, a foreign body or a permanently displaced meniscus (3) operations for an acute condition of arthritis as for example incision of the joint or puncture of the joint and washing of the cavity with an antiseptic normal saline solution or the (4) operations designed to improve the functional utility of the joint or to render it useful or that of the limb painless the pain being due to a mechanical cause rather than inflammation.

The following operations may be included (1) removal of osteophytes (2) excision of the joint or arthroplasty (3) excision or arthrodexis (4) operations to alter the position of a fixed joint in order to improve the functional utility of the limb.

VERRALL. The treatment may be divided into two parts: (1) that of the causative disease and (2) that of the local condition. After the former early operative removal of all mechanical factors such as loose bodies, ragged semilunar cartilages, lipomata, arborescentia and osteophytic outgrowths is

indicated. Cases of chronic arthritis of the proliferative type with chronic effusion when the causative disease is intestinal (typhoid dysentery or bacillus coli infection) are successfully treated by ether lavage.

**PLATT** The essential cause of limitation of motion and pain in cases of osteo arthritis of the hip is not the presence of marginal osteophytes but the dense infiltration of the capsule which becomes shortened and adherent to the femoral neck and the expansion and mushrooming of the head of the femur.

The severe pain is dependent on the friction and crowding together of the two eburnated bony surfaces from which usually all traces of cartilage are lost early.

In early cases the removal of the osteophytic rim of the acetabulum as part of the free excision of the infiltrated capsule is a beneficial conservative procedure. In more advanced cases arthrodesis is of value if the patient is robust and fairly young. In the cases of older less robust patient excision of the femoral head is indicated.

**SIR ROBERT JONES** In the treatment of osteo arthritis rest of the painful joint is of paramount importance. In the later stages manipulation to break down adhesions and increase motion is often of value.

In the cases of old persons with very painful hips an operation consisting of the separation of the trochanter the removal of a portion of the femoral neck and fixation of the trochanter with muscle attached to the portion of the neck contiguous to the head which is not removed from the acetabulum can be done without shock. In cases in which both knees are stiff and painful arthrodesis of one knee straight and of the other in a slightly flexed position is done.

HEPHERSON M.D.

**Tetzlaff A.** A Method of Mobilizing the Elbow Joint in Ankylosis (Lin. Method. M.I.I. Zerges Ellbogenankylosis. B.T. H.N. Ch. 1933).

The success of all method of elbow excision with or without a fascial plastic or the implantation of fat depends to a great extent upon the position of the joint in relation to the axis of the arm and the intelligence and will power of the patient and co-operation on the part of the patient during the period of the after treatment.

In three cases of ankylosis of the elbow in the position the author excised the joint completely sacrificing the extensor apparatus and drew the skin flaps formed by the operation over the stumps of the bones. In this manner a hinge was made which permitted active motion. The patients very soon learned to simulate extension of the arm by very gradual dorsal relaxation of the contracted flexor musculature of the upper arm. This method does not of course give a functionally perfect arm but it prevents the use of an apparatus requiring active extension but it has proved profitable and of value in certain special cases.

BODD (Z)

**Ipsley P.** A Proposed Modified Fusion Operation on the Spine. A Combined Operation Producing More Rapid Ankylosis. J. Bone & J. 15, 1924, 6.

The operation described is a combination of the well known fusion operation proposed in 1911 by Hibbs of New York City and the osteoperiosteal graft proposed by Olier of Lyons France and executed so successfully by Delageniere of Le Mans France. The technique consists in:

1. The classical fusion operation with the technique of Hibbs.

2. The placing of one or two osteoperiosteal grafts obtained from the tibia by the technique of Delageniere in a bed of bone that has been denuded of its osteoperiosteal layers.

The purpose of the graft is not to produce a splint but to furnish all the elements necessary in the production of new bone and thereby effect a more rapid early ankylosis. The method is applicable to those conditions in which solidification is indicated such as tuberculous fracture and scoliosis but specially tuberculosis.

The advantages are a quicker and more complete solidification and reduction of the danger of pseudarthrosis. A continuous bony bridge is formed across the posterior portions of the bodies and laminae.

The technique of a Hibbs spine fusion operation as given by Hibbs in an article in the May, 1922 issue of the *Archives of Surgery* is quoted as follows:

An incision is made through the skin and subcutaneous tissue from above downward exposing the tips of the spinous processes of the vertebrae to be fused. The periosteum over the tips of these processes is split longitudinally and with a periosteal elevator pushed to either side leaving them bare. The posterior and interspinous ligament in turn are still farther split and pushed forward a short distance from each spinous process as two lateral

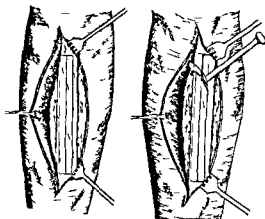


Fig. 1 (left) The removal of the posterior part of the vertebral body and the preparation of the spinous process. Fig. 2 (right) The removal of the graft by means of the chisel. The graft is placed in the bed of bone.

halye g uze packs b ing in erted to prevent oozing. The lixsection is carried farther and farther forward upon each vertebra in turn until the spinous processes and the posterior surfaces of the laminae and the lve of the transverse processes are bared thereby exposing the lumentum subissum attached to the margins of the laminae and the articulations of the lateral processes.

The lumentum is removed from the laminae with a curette and the articulation of the lateral processes is destroyed in order to establish bone contact at this point. With a fine gouge a subcutaneous incision is elevated from the adjacent edges of each lamina of half its thickness and of half its length. The free end of the pie is from above is turned down to make contact with the lamina below and the free end of the pie is from the lamina below is turned up to make contact with the lamina above.

Each spinous process is then partially divided with bone forceps and broken down forcing the tip to come into contact with the bare bone of the vertebra below. The spinous process of the last vertebra below should be turned up to bring it into contact with the next above. As the spinous processes of the lumbar region are wide it is sometimes practicable to join them turning one half up and the other half down. This is a tall heel contact of abundant cancellous bone at the junction of the lateral processes. Laminae and spinous processes of the pelvis and ilium are joined together have been pushed to either side. It is practical to an unbroken site it is brought together with the middle with interrupted suture of catgut. The incision is cut with a scalpel with a catgut suture. The incision is cut with a scalpel with a catgut suture.

The technique of the operation is as follows: The patient is placed on the operating table. The patient is placed on the operating table. The patient is placed on the operating table.

The grafts are taken from the intercostal space or the ilium with the use of a chisel and mallet. A line is made through the skin on the ilium of the internal surface of the tibia without cutting the periosteum. The layers are separated with the grafts are outlined with a scalpel. The graft is removed separately or in a block with graft in the middle and is ligated with a haemorrhagic suture. The size of the graft is determined by the area to be covered. Following the operation the grafts are secured with a chisel. The level is kept high and the cutting edge is smoothed against the bone. By varying the inclination of the grafts the proper thickness which is approximately that of a ten-cent silver coin. When the graft is removed it is placed in a compo and then immediately is planted into the bed which has been prepared to receive it.

In the author's opinion the osteoperiosteal graft which was first recommended by Olier and established firmly by Delagenière is the most efficient bone producer known at the present time.

Olier reserves the credit for or at least the osteoperiosteal graft. His results were not favorable for two reasons: he used too thick a graft and his wounds often became infected. To Delagenière belongs the credit of placing the method on a sound basis by outlining the indications and contraindications of the technique. In 1917, the results of 23 cases. During the war the three ardent advocates of this type of graft were Delagenière (Lyon), Olier (Paris) and Duval (Paris).

The author recommends very strongly the use of the osteoperiosteal graft as a supplement to the mass bone graft in the repair of fractures of the long bone. D. A. H. LIVING, M.D.

Santy P. Arthroplasties (Les arthroplasties) B. 1917, 13, 4, 1, 135, 105.

Santy discusses the results of arthroplasty on various joints according to Olier's subperiosteal technique. In the shoulder and elbow it has some times given excellent results. In the hip it is obtained only at the expense of stiffness and instability of the lower limb. In the knee the indication for arthroplasty is given not only in various ankyloses but also in order to avoid losses when the conditions are good. In France arthroplasty has been little used because up to the present time Olier mobilizing resections have given poor results elsewhere. Only the knee joint can be benefited to any considerable extent by the newer methods of arthroplasty. W. A. BARRE.

Cole F. S. An Operation of the Alar Treatment of Some Cases of Congenital Club-Foot. J. B. 1917, 13, 4, 1, 135, 105.

The author states that in a certain percentage of his cases of club foot a certain degree of toeing in is always persists regardless of the amount of overcorrection used in the first course of treatment. This attitude is to be inward twist of the foot. The object of the operation described is to rotate the tibia to a transverse subperiosteal osteotomy in the middle third. If this is not possible the foot is rotated to the level of the leg and a plaster cast is applied from the toes to the groin with the knee flexed. The cast is left in for eight to ten weeks. F. S. COLE, M.D.

## FRACTURES AND DISLOCATIONS

Sloman H. C. On the Spontaneous Recovery of Congenital Dislocation of the Hip. J. B. 1917, 13, 4, 1, 135, 105.

Spontaneous recovery of congenital dislocation of the hip is rarely reported. The author reports two cases and refers to a few of those previously reported.

Sloman's first case was that of a 2-year-old girl with a dislocated femur which was a year old but always with lump. Clinical and X-ray examination showed a typical subluxation of the head of the femur. Treatment was postponed and the patient's parents instructed to bring her back at the end of six months.

The patient did not return until she was 4 years of age. By that time most of the clinical symptoms of congenital dislocation of the hip had disappeared and the X ray showed normal position of the head of the femur and only slight aplasia of the roof of the acetabulum.

The second case was that of a girl 16 months old who had just begun to walk. Clinical and X ray examination showed subluxation of the head of the femur. Treatment was postponed. Limping ceased in nine months. When the patient was seen again at the age of 9 years the clinical symptoms had almost entirely disappeared and the X ray showed a normal hip joint and only slightly diminished development of the roof of the acetabulum.

The author states that of twenty one reported cases of proved congenital dislocation spontaneous recovery can be regarded as established in only twelve.

Recovery depends on two processes (1) reposition of the head of the femur and (2) approximation of each element of the hip joint to the normal. The latter process is especially evident in the progress of ossification of the head of the femur after the establishment of normal function. The shrinking of the capsule of the joint is a force which may help in reducing the luxation. In early infancy there is a sharp demarcation between the different degrees of dislocation.

FRANK C. MILLER, M.D.

#### Russell R. H. Fracture of the Femur. A Clinical Study. *B. I. J. S.* 2, 94 x 49

The treatment of fractures of the shaft of the femur advocated by Russell requires an overhead four poster frame adhesive plaster extension similar to Buck's extension which reaches to a point below the knee joint only and slight flexion of the knee by means of a knee sling. Traction is exerted from the knee sling to an overhead pulley which is almost vertical then down to a pulley which is attached to an offset at the foot of the bed then to a pulley at the spreader attached to the end of the extension then through the fourth pulley attached to the offset at the foot of the bed and then to a weight of

8 lb. in the cases of adults and between 4 to 4 lb. in the cases of infants and children.

This causes relaxation of muscle spasm and consequently reposition of fragments. Sagging of the fragments is prevented by the knee sling and extension is obviated by the flexion of the knee and the knee sling. Traction to the knee does not cause strain on the lateral ligaments of the knee as is commonly thought.

Displacement of fragments is caused first by an unnatural position and discomfort. This is a result of muscle spasm and is overcome as soon as the limb is adjusted in a comfortable and natural position. Gravity the second cause is overcome by the use of a knee sling. A third cause is the use of splints. In the author's opinion neither Thomas splints nor any other type should be employed.

A number of case histories are reported to illustrate the treatment described. A very good indication of the interposition of soft tissues is a peculiar elastic recoil when traction is released. For this condition Russell recommends transverse section of the interposed tissues release of the fragments and further treatment such as that given for simple fracture.

RODOLPH S. REICH, M.D.

#### Schaeffler R. M. Some Complications Following Internal Fixation in Fractures of the Femur. *S. G. Clin. V. Im.* 931, 1631

The author reports a case of fracture of the femur complicated by paralysis of the external popliteal nerve due to pressure of the cast over the head of the fibula. The fracture was united with a varus angulation of about 140 degrees and was corrected by wedge osteotomy.

Another fracture which had been fixed by a metal band was still ununited after a year. Several sequestra were removed in an endeavor to stop the persistent discharge.

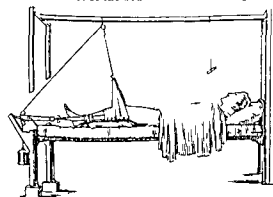
Mention is made also of three cases in which a simple fracture was converted by operation into a compound fracture, thus resulting in delayed union or permanent disability far worse than would have been caused by the original malposition.

Surgeons who are masters of external fixation seldom find internal fixation necessary in simple fractures of the femur. The only cases requiring open operation are those with irregular bone ends which cannot be maintained in apposition and those with interposition of muscle.

WILLIAM A. CLARK, M.D.

#### Radice L. The Influence of the Peripheral Nerves on the Healing of Fractures. (*D. I. I. S. e. z. d. i. p. i. l. l. a. d. m. n. t. o. d. i. l. l. i. f. r. a. t. t. u. r. i.*) *A. I. d. Ch.* 923, 84

The influence of the nervous system on the regeneration of tissues in general and of the bones in particular has been studied by various investigators but thus far the observations have been very contradictory. In a review of the literature and particularly of reports made during the war the author



Sh g t f t l

noted that a large number of fractures complicated by peripheral or central nerve lesions healed completely. This observation refutes the claim that there is a definite alteration in the regenerative power of bone in neurotized animals.

Travers has reported a case of fracture of the vertebra with paraplegia and fracture of the leg and arm. The fracture of the arm healed in the normal time whereas that of the leg healed in pseudarthrosis. Hillis reported a similar case that of a patient who died five weeks after the injury. He noticed that by the end of the fifth week the reparative changes in the bone were those of the last stage. Bush refers to the case of a 25-year-old man with paraplegia of the lower extremities within six weeks of the complete healing of a fracture of the leg. On the other hand Kenan and Tusn reported a case of paraplegia in which union of a fracture failed to occur. Baum reported a series of eleven cases of fracture in tabes. Two subtrochanteric fractures united with hypertrophy of the callus. In three cases periarthritis and myositis ossificans developed. In the other normal healing occurred.

Simon has reported twenty-five cases of fractures occurring in tabetics. Of this number twenty-two united normally. Oliver in 1907 and Kujumum in 1938 reported that resection of the nerve trunk to the extremities is not consistent with normal bony union. The work of Mucati and Dumas on young rats shows that bone union occurring in the neurotized limb is practically all smaller and less cartilaginous than that found in limbs with normal nerve injury. Covert and Hannon reported these findings. Boule reported that when the limb of an animal was fractured and after the neurotomy callus formation did not occur at all. From extensive experiments Merz in 1901 concluded that degenerative changes and atrophic disturbances occur if the injury to the bone is inflicted at a later date following nerve resection but that if both the nerve and bone are injured at the same time the regenerative changes will be normal. Denti stated that variations from the norm in callus formation are due to disturbance of the vascular system of the local parts and that insofar as the system is under nerve control it may be stated that injuries of the nerve supply of a limb will indirectly influence the regenerative changes.

In 1930 Patzsch reported another series of experiments on young healthy rabbits. In a case where the bone was fractured at the time of the nerve injury or three months later, there was no disturbance of union and callus formation. Minchin corroborated these findings. On the other hand a number of experimenters including Kierman most strenuously maintain that nerve section is followed by abnormal callus formation. Oge Drummond and Kerh Bonome and Biagi go a step farther stating that following nerve injuries there is no consolidation of the callus. The author cites the brachial plexus in ten rabbits the median nerve in fourteen and the

radial nerve in fifteen. Ten days after the neurotomy he fractured the bones on both the neurotized and the non neurotized side. From the results he concluded that the neuropathic hamorrhage the loss of sensation and the atrophy of disuse do not in any way influence callus formation or fracture union and that when disturbances of regeneration of bone occur either clinically or experimentally other factors entirely independent of nerve injury must be considered.

JAMES V. RICET, M.D.

Dick on F.D. and Olney R.L. Injuries to Peripheral Nerves Associated with Fractures. *Surg. Clin. N. Am.* 1923, 13, 1739.

CASE 1. The patient was a 3-year-old boy with a supracondylar fracture of the right humerus. The arm was put up in acute flexion. Flexion of the fingers and wrist developed in a few days. Attempts at extension caused severe pain. Examination six weeks after the injury showed muscular atrophy, a scar of slough in the cubital space the elbow held at a right angle only 15 degrees of motion, a large callus about 1 cm. prominence of the internal condyle, acute flexion of the fingers, thumb and wrist, inability of active or passive extension and depression of the entire distribution of the median and ulnar nerves.

The nature of the injury the contracted flexors and the sensory disturbance clearly indicated an injury to the median nerve of an irritative type rather than division and possibly some involvement of the ulnar nerve. At operation the median nerve was found hooked over a bone fragment embedded in scar tissue and decreased in size for about 4 mm. The nerve was released and transplanted in a gap with the posterior muscle. The ulnar nerve seemed normal. The fingers, thumb and wrist were flexible, tight and a palmar splint applied for two months. Improvement in sensation began a few days after the operation and under massage and electrically induced motion and sensation fully returned. In the index finger recovery was slower than in the other probably because of greater injury to the fibers supplying it.

CASE 2. The patient was a 10-year-old child with a spiral fracture of the left humerus. The arm was put up in the Jones position. After a few hours tingling and numbness in the thumb were noted. At the end of three weeks there was complete wrist flexion. Examination after five weeks showed good flexion of the wrist, elbow no power in the extensors of the wrist and inability to extend only the proximal phalanges. Sensation on the dorsal surface of the thumb was diminished. The sinistral adductors of the thumb were also the point where it divides into the radial and posterior interosus nerves. At operation in March the musculospiral nerve was exposed through the space between the brachialis anticus and the bicipitoradialis. It was found embedded in scar tissue from the point of its insertion upward about 6 cm. hard and diminished.

in size above the scar it gave no response to electrical stimulation. The sheath of the nerve was split and dissected free the nerve then buried in the brachialis anticus muscle and a cock up splint applied. In ten days power began to return in the extensors. Five weeks after the operation there was 75 per cent power in the finger extensors and 25 per cent power in the wrist.

CASE 3. This case was that of a woman aged 70 years. A Colles fracture of the right wrist which was sustained November 10 was treated by the application of a straight splint for eight weeks without mobilization. Examination on January 27 showed marked limitation of motion stiffness of the finger and severe pain on passive motion. Pain was present constantly day and night especially in the middle and ring fingers where there was hyperæsthesia. After about three months of conservative treatment without improvement neurolysis of the ulnar and median nerves was done at the wrist. The nerves were found compressed by adhesions. Intense pain persisted for three days after the operation. After about three months there was only an occasional shooting pain in the middle finger but motion practically normal in the wrist and was good in the fingers except for slight stiffness of the middle finger. The period of long immobilization was responsible for the condition as it favored the accumulation of blood and exudate.

CASE 4. The patient was a woman of 4 years. Fracture of both bones of the leg when she was 6 years old was followed by varus deformity and weakness in the foot. A brace was worn for twelve years and then discarded. The deformity gradually increased. The patient walked with a limp and with the foot in extreme equinovarus position. Examination showed muscular atrophy and total paralysis of all the peroneal muscles but very little sensory disturbance. At operation the anterior tibial nerve was exposed through an incision over the outer side of the tibial crest. It was found embedded in callus for about 2 in. It was dissected out and buried in the anterior tibial muscle. Neurolysis of the posterior tibial was done through a posterior incision and the nerve buried in the posterior tibial muscle. There was some return of power in the toe flexor a few days but a good result is not expected because of the degree of the muscular atrophy. The deformity in this case could have been prevented as the symptoms of nerve lesion were present eight days after the fracture.

In three of these four cases the fracture was near a joint. Nerve lesions are more apt to follow fractures near joints because in the joint region the nerves are nearer the bone and because the compact structure in that region does not permit expansions in the presence of a large hemorrhagic exudate.

In cases of nerve lesions the nerve should be explored within two months. If neurolysis is then found unnecessary no harm has been done. Since the economic importance of peripheral nerve injuries after fractures is very great more attention should

be paid to the function of the extremity beyond the fracture with a view to preventing paralysis and deformities.

WILLIAM A. CLARK, M.D.

# Cook, R. J. The Results of Treatment Following Compound Fractures Occurring in Civil Life *J. Bone & Joint Surg.* 1924, v. 9, 5

In cases of compound fractures the surgeon may choose one of the following methods of treatment: (1) cleansing of the wound with antiseptics and the application of antiseptic dressings; (2) drainage; (3) debridement followed by Carrel-Dakin treatment; (4) immediate suture after debridement; or (5) delayed primary suture. The methods brought out during the war may not be best for all cases in civil life since the circumstances differ. During the war surgeons often received cases of compound fracture from ten to twelve hours after the injury while in civil life treatment is rarely delayed more than three or four hours. The army surgeon may therefore well hesitate to do a debridement and primary closure while the civilian surgeon need not.

This article is based on a study of 115 cases of compound fracture of the long bones treated at the New Haven Hospital in the period from 1913 to 1923. Sixty-eight were treated primarily by the method of aseptic occlusion, nine by drainage, eight by the Carrel-Dakin technique, twenty-six by debridement and closure, and five by amputation.

In the cases of aseptic occlusion the healing of compound fractures caused by direct violence usually required a little longer time. Cases in which reduction had been effected by wiring or plating usually required six times as long for healing as those in which no foreign material was introduced, but if the plating was done secondarily the average time necessary for recovery was only twice the normal. In this group the average time in which the wound healed in uncomplicated cases was sixty-two days. In nine cases treated by drainage the average time was one hundred and seventeen days. Four of the cases treated by the Carrel-Dakin method required an average of one hundred and thirty days for healing. In two others the fracture was unhealed when the patient was discharged after an average of sixty-five days.

In four of the cases treated by debridement and immediate suture bone fragments were removed. Two of these healed in sixteen and twenty days respectively. In one drainage was necessary subsequently and healing required one hundred and seventeen days. One patient died of gas bacillus infection. In thirteen other cases in this group healing required an average of thirty-five days. In five drainage was necessary.

When it is possible to reduce the fracture at the primary treatment the wound will heal more quickly. Osteomyelitis is most common in cases treated by aseptic occlusion, drainage, and incomplete debridement. Streptococcus infection requires wide opening of the wound and Dakin treatment. Gas bacillus infection makes amputation necessary.



the Board of Education (2) a local committee for the care of cripples in every district (3) hospital schools such as the Shropshire Orthopaedic Hospital with open air wards each school being run under its local committee with its own teaching staff and handicraft workshops and (4) out patient clinics or after care centers

JOHN W. POWERS, M.D.

De Gaetano L. Three Years of Reconstruction and Orthopedic Surgery. Congenital Deformities (Un triennio di chirurgia ortopedica e riparatrice—definita congenite). *Riforma medica* 923 1:143

**Harelip.** The author has operated upon eleven cases of harelip in children between 14 months and 12 years of age. In two cases the condition was bilateral in several it was associated with cleft palate and in one it was associated with cleft uvula. The operative technique employed was that of M'Quillan. In one case of harelip with extensive bony deformity—a prominent superior maxilla and protruding incisors—reconstruction was effected by resetting the bony structure and resetting it in proper alignment in a one stage operation. The functional and cosmetic results seen a month after operation were very satisfactory.

In the author's opinion harelip should be operated upon soon after the first year of life.

**Spina bifida.** De Gaetano has operated upon five cases of spina bifida. He agrees with von Recklinghausen and Muscatello that this condition is due mainly to hyperactivity of the spinal cord and arrest of the development of the vertebrae. In two of his cases the defect was in the dorsal region in two in the lumbar region and in one in the lumbosacral region. Only the last had definite characteristics of a meningocele. The two in which the defect was in the lumbar region had the characteristics of a pedunculated myelocystocele—that is the cystic tumor arose from the dilated portion of the spinal canal and there was stenosis of the communicating portion. In the two cases in which the defect occurred in the dorsal region it was very large with a broad base necessitating an extensive plastic procedure to close the cavity.

There was one death in these five cases—that of an infant 10 months old with a large spina bifida in the dorsal region. This death was attributed to operative shock. Among the cured patients as an infant 3 years of age which was born with small cystic tumor mass in the dorsal region the size of a hazelnut which gradually enlarged to the size of an orange. The enlargement and the accumulation of fluid produced pressure symptoms and jeopardized life until the tumor mass spontaneously ruptured. Drainage caused temporary cessation of the symptoms but the closure of this small aperture and the subsequent accumulation of fluid was followed by recurrence. An operation was then performed. Recovery was uneventful. Subsequent examination has shown the patient to be normally active and of normal mentality.

The author urges surgical intervention in these cases even though the patient may be a poor surgical risk. The only contra indications are the coexistence of a severe hydrocephalus paralysis of the extremities or cachexia.

**Hydroencephalocele.** Analogous to the distention of the ependymal canal are distention and enlargement of the cerebral ventricles. This congenital malformation develops prior to the differentiation of the mesenchymal elements covering the brain substance. In other words it is an early malformation of intra uterine life. The views of several investigators are given in support of this theory. A case of this type which was operated upon was that of a 2 year old child with a suboccipital cystic tumor mass the size of a lemon with its longest diameter running from left to right a marked strabismus and a beginning optic atrophy. The patient was unable to stand unsupported and had the facial expression of idiocy. The operation consisted in exposing the sac and emptying the fluid contents. Death occurred on the third day after the operation. There is little to be hoped for from surgical measures in this type of case.

**Congenital torticollis.** The three cases of congenital torticollis in the series were those of patients 14, 16 and 22 years of age. At operation an incision resembling the letter Z was made in the sternocleidomastoid muscle and the muscle then elongated to the desired length. The perimuscular fibrous structures concerned in the support of the head were also incised. In the cases of persons well advanced in years and those with well marked deformity it is preferable to resect the entire muscle. When the lesion does not yield to massage etc. the author prefers a subcutaneous tenotomy for the mild cases open tenotomy for the moderately severe types and tenoplasty (the Bayer technique) in the very severe cases and those of older patients. In all cases observed the development of the face had been arrested on the side corresponding to the muscular deformity. This observation favors the theory ascribing the deformity to congenital causes and refutes the theory ascribing it to obstetrical injuries. Stromeyer believed that it was due to a hematoma of the muscle developing during delivery. Walker and Schloemann attributed the arrest of growth on the affected side to ischemia caused by interference with the blood supply by excessive flexion.

**Congenital cysts and fistulae of the neck.** Five cases of congenital cysts and six of fistulae of the neck were operated upon. Four of the cysts were of median thyroid origin and one was of lateral origin. On microscopic examination the inner surface of the cyst walls as found to be lined with cylindrical epithelium. Such cysts may be considered derivatives of the thyroglossal diverticulum. All five were in males between 13 months and 18 years of age.

Of the fistulae two were of median thyrohyoid two of median thyroid and two of lateral thyrohyoid origin. All were secondary to congenital cysts and discharged a stringy fluid. A few showed pus



Histological examination demonstrated that five originated from the thyroglossal diverticulum and that one was of branchial origin. Three occurred in males and three in females between 6 and 26 years of age. In the treatment it is essential to remember that some of the fistulae contained microscopic tubular structures invading the surrounding tissue which left in situ will reproduce the lesion.

**Congenital luxation of the hip.** In four cases of congenital luxation of the hip reduction was effected successfully without operation. Satisfactory results can be obtained by no operative method provided they are applied before the second year of life.

Physical examination with the infant in the erect position reveals a lowering of the anterosuperior iliac spine below the inguinal fold, elevation of the great trochanter above the Poser-Nelson line and a much more lateral prominence of the greater trochanter. In the recumbent position the extremity of the affected side shows slight shortening. With the leg in moderate flexion and abduction palpation of the supra-trochanteric area with the index finger and thumb reveals the head of the femur in the iliac fossa much further anterior and steeper than is normal. These signs are not easily demonstrable in the infant except in the more marked cases. In doubtful cases other deformities such as coxa vara, paralysis of the abductors and coxa plana must be considered. In such cases the X-ray is of great aid. In the treatment the author prefers manipulation according to the method advocated by Lorenz and Jacz. His experience has shown that immobilization for from six to twelve months is essential for the re-establishment of normal conditions and the prevention of recurrence. J. M. S. Picot, M.D.

**Calland, W. J. A Simple and Invaluable Drop Foot Brace.** J. A. M. 1941; 3.

The brace described consists of a spring inserted in a pocket in the tongue of the shoe. The pocket which can be made by any shoemaker extends from the upper margin of the tongue to the middle of the toe cap. The posterior layer of the pocket is lined with soft felt.

The spring is a spiral telescopic spring such as is used in phonographs and alarm clocks. Its size and

strength depend on the size of the foot to be supported. A small child requires only a light spring 1/8 in wide and from 1/32 to 1/16 in thick while a large child may require one 1/4 in wide and 1/16 in thick.



Fig. 1. Construction of the drop foot brace. A, B, flat padding.



Fig. 2. The drop foot brace. A, B, flat padding. C, the drop foot brace. D, the drop foot brace. E, the drop foot brace. F, the drop foot brace. G, the drop foot brace. H, the drop foot brace. I, the drop foot brace. J, the drop foot brace. K, the drop foot brace. L, the drop foot brace. M, the drop foot brace. N, the drop foot brace. O, the drop foot brace. P, the drop foot brace. Q, the drop foot brace. R, the drop foot brace. S, the drop foot brace. T, the drop foot brace. U, the drop foot brace. V, the drop foot brace. W, the drop foot brace. X, the drop foot brace. Y, the drop foot brace. Z, the drop foot brace. AA, the drop foot brace. AB, the drop foot brace. AC, the drop foot brace. AD, the drop foot brace. AE, the drop foot brace. AF, the drop foot brace. AG, the drop foot brace. AH, the drop foot brace. AI, the drop foot brace. AJ, the drop foot brace. AK, the drop foot brace. AL, the drop foot brace. AM, the drop foot brace. AN, the drop foot brace. AO, the drop foot brace. 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This splint is of value in cases of drop foot or equinus without strong predominance of the plantar flexor group of muscle. Spastic equinus is a contraindication to its use. H. M. & S. C. M. D.

# SURGERY OF THE BLOOD AND LYMPH SYSTEMS

## BLOOD AND TRANSFUSION

**Friedlaender B. The Blood Sedimentation Test as an Aid in Diagnosis in Surgical Infections**  
*Am J Obst Gynec 1924 v 11 5*

Although the blood sedimentation test yields no practical results for the diagnosis of pregnancy until a general biological reaction has taken place after the fourth month its negative finding is of material aid in differentiating pregnancy from simple tumors after the fourth month. It is of some aid also in the diagnosis of unruptured ectopic pregnancy. Ruptured ectopic pregnancy having about the same sedimentation time as pelvic inflammatory conditions must be diagnosed by exclusion.

The diagnosis of pelvic inflammatory conditions may be confirmed by the test.

The reaction is especially valuable in gynecology to determine whether a patient with an inflammatory adnexal disease but with a normal temperature and blood count should be subjected to operation. A sedimentation time under thirty minutes means active infection and a sedimentation time under one hour latent infection under such circumstances operation is contra-indicated. A sedimentation time over two hours excludes all possibility of a latent or active infection therefore the patient may be subjected to operation safely.

No dilatation curettage or other surgical interference should be undertaken before a sedimentation test is made to exclude latent infection of the genital organs.

The value of the test is proved by its application to medical conditions since all such cases with an infectious process show a decided decrease in the sedimentation time. **EDWARD I. CORLI, M.D.**

## LYMPH VESSELS AND GLANDS

**Eloesser L. Obstruction to the Lymph Channels by Scar**  
*J. t. M. I. 1931 86*

Crafts of skin and the undraining soft parts whether transplanted by free grafting or Italian plastic operations in several stages reflect the site of an annoying edema. The vessel and of tissue completely surrounded by scar and the edema may persist for a long time. Even if it disappears it may recur.

Eloesser has observed that during the injection of an anesthetic for local anesthesia the retrograde offers an almost impermeable barrier to diffusion. To determine whether it acts as a barrier to the regeneration and growth of lymph vessels he carried out a series of experiments on rabbits.

Incisions were made through the dorsum of the ears of the experimental animal but usually not

through the cartilage. After the incision had healed a suspension of barium sulphate or India ink was injected under the skin distal to the scar.

It was difficult to inject the barium sulphate into the lymph vessel as the suspension gathered about the site of injection. The scar offered complete obstruction to the passage of the barium.

When the India ink was injected slowly a round black spot first appeared beneath the skin and then suddenly from this spot the ink darted into a lymph vessel and ran rapidly into the smaller branches near the site of injection. This continued until it reached the scar where it stopped. The ink ran fairly freely until it reached the unscarified portion of the ear when it ran along the unruptured lymph spaces to the distal portion of the ear.

The conclusion drawn from these experiments is that scar causes a relative stenosis of the lymph channels obstructing the passage of gross particles such as those of barium sulphate but not the finer particles such as those of India ink.

It was noticed also that although the lymph vessel of the ear were partially obstructed the reaction was normal.

In these specimens the ink traces were clearly outlined along well defined lymphatic vessels.

The ears of the animal were then inoculated with streptococci from a case of empyema. A number of the animals died after the inoculation on account of the virulence of the strain. In those which survived the infection the attack gradually subsided at the end of a week or ten days leaving a very slight edema and thickening of the skin of the dorsum of the ear. Injection of older cultures of streptococci caused much milder reactions and in some cases almost none.

The lymph channels of these ears could not be injected with India ink as the channels were completely blocked. The blocking of the channels appeared in both the mildly infected and the very severely infected animals.

In conclusion Eloesser says that a healed scar obstructs the lymphatics partially but not completely. Some but not perfect regeneration of the lymphatics occurs across the scar. Infection with certain strains of streptococci completely blocks the lymphatics. **DAN M. LLEN, M.D.**

**Lemon W. S. Tuberculo is as an Etiological Factor in Hodgkin Disease. A Historical Review**  
*Am J. M. Sc. 1924 cit 178*

The author gives a historical review of the subject together with conclusions drawn from a series of 191 cases of Hodgkin's disease which he studied at the Mayo Clinic.

Hodgkin in his original description of the disease stated that he believed it to be a primary affection of the lymph glands rather than the result of an inflammatory process. Wilks, Trousseau and Wunderlich differentiated it from leukemia, syphilis, lymphosarcoma and tuberculosis. Fagge, Weigert and Delafield described cases of primary glandular tuberculosis that could not be differentiated clinically from Hodgkin's disease. Sternberg came to the conclusion that the disease is a peculiar type of tuberculosis. A number of his contemporaries including Westphal believed that tuberculosis is a secondary invader.

Pizzini has found that many patients have tuberculous glands but do not have tuberculosis. Therefore the finding of tuberculosis in a case of Hodgkin's disease would not prove the former to be an etiological factor. Saylor, following the work of Sternberg, concluded that the majority of cases are due to tuberculosis. Reed, Longcope and Simmons, who have made the pathological picture of Hodgkin's disease definite, have given evidence of the distinctiveness of the two diseases. In 1914 Wuttke concluded that the disease is due to a modified strain of tuberculosis bacilli. Loygue in 1921 stated that the etiology is uncertain but that the most probable cause is tuberculosis.

The author discusses the clinical similarity of the adenopathy in tuberculosis and Hodgkin's disease. In his series the differential diagnosis from lymphosarcoma proved the most difficult. The similarity of Hodgkin's disease to tuberculosis applies to three types of the latter: (1) an acute tuberculous adenopathy in which the glands remain discrete; (2) a form in which the glands are large, hard and discrete with no peridematitis but with calcification; and (3) a tuberculous adenopathy seen in negroes which resembles the leukemias.

The author discusses his observations on the cases of Hodgkin's disease with mediastinal involvement. Only two of the twenty-six patients gave a family history of tuberculosis. The roentgen ray examination revealed pulmonary tuberculosis in only one case and this finding could not be confirmed clinically. In only eight of the author's series of 191 cases was there evidence of tuberculosis; this was revealed by roentgen ray examinations of the chest. More or roentgen ray examinations of the chest revealed healed or open tuberculosis in seventeen of 191 unselected routine cases. Lemon concludes that there are many similarities between tuberculous adenopathy and Hodgkin's disease but that tuberculosis does not produce Hodgkin's disease although the two may be associated. W. W. CRAIG, M.D.

# SURGICAL TECHNIQUE

## OPERATIVE SURGERY AND TECHNIQUE POSTOPERATIVE TREATMENT

Payr E. Errors in Aseptic Technique Which Are Frequently Overlooked (Ueb r ig e n, beachtete Fehler in der Asepsie) Z f ahl f Ch 19 1 160

In spite of our highly developed aseptic technique it is still possible that the surgeon's hands or the field of operation may not be sterile. The author reviews these possibilities briefly.

Bacteriological examinations have demonstrated that the otherwise healthy skin in the neighborhood of a purulent lesion may be heavily infected for a radius of about 30 cm. It is therefore advisable to use caution in palpating this skin. A long dressing forceps tipped with cotton saturated in alcohol may be substituted for the fingers to a considerable extent.

After the patient has been bathed, shaved and washed with alcohol and ether the evening before the operation an aseptic protective bandage should be applied on the day of operation no water should be applied to the operative field.

Infection may be spread by tape measures, compasses, protractors, rulers and instrument for auscultation and percussion. Metallic instruments are therefore preferable to those made of wood. During clinical instruction in which model glass slides, loops, sputum cups, urine containers, etc. are used the danger is particularly great as these objects are used occasionally in a septic case. Wooden splints that have been saturated for dressings and the straps of the operating table may be the sources of severe infection. Glis on lig plaster bandages, braces, hinges and enrtng nrv plates may harbor infection and dangerously contaminate the hand. In the operating room the Esmarch bandages, Bieshaemorrhage bandages and the anæsthetizing apparatus may be carriers of infection.

In the Payr clinic the umbilicus is washed out with iodobenzene and irrigated with most of the skin is powdered with sterilized talc. In operations on the intestinal tract the gall bladder after the so-called triple incision has been opened the instruments are changed frequently and the suture material is changed.

Holman F. Protein Sensitization in Skin Grafting. In: The Latté of Practical Value? S f Gy 5-Ob 1 94 00

The author's observations are supported by Schoen's view. Holman removed grafts for microscopic study on the sixth, thirteenth, twenty-second

and thirty-second days after their application. By the sixth day the graft showed evidence of a beginning extension of epithelium from the edge. By the twelfth day the epithelium had advanced over the granulation tissue in a very thin layer. This layer then gradually thickened until it had assumed the character of normal epithelium. The specimen removed on the thirty-second day showed only the slightest vestige of very delicate stained epithelium. An identical picture was noted in sections of grafts removed from two of the groups.

The full cycle of an isograft ranges from approximately twenty-four to thirty-six days; therefore a report of a successful isograft based on an observation of only ten to twenty days is obviously not of the slightest value.

Of particular interest in the author's experiments is the evidence presented by a specific process of differentiation involving a specific antibody for each set of grafts. Holman's experience prompts him to emphasize the possibility of sensitizing the patient to the foreign protein of the graft. Protein sensitization or poisoning may be manifested by a general reaction on or by only a gradual disintegration of the foreign transplant. Holman questions the value of attempting isografting when there is skin available for an autograft.

EMIL C. ROBITSCHER, M.D.

## ANÆSTHESIA

Ros F. I. Some General Effects of Local Anæsthetics Administered as in Tonsillectomy. J O l Rh l & Lary g l 923 x 1229

The author's work was done to determine the cause of systemic effects following tonsillectomy performed under local anesthesia. In an animal experiment it was found that the arterial pressure increased 223 per cent, the intracranial venous pressure increased 467 per cent after cocaine and adrenalin were injected as in the routine clinical tonsillectomy. After cocaine and adrenalin were swabbed on the throat the arterial pressure increased 137 per cent and the intracranial venous pressure 193 per cent. Such increases are due to the synergistic action of cocaine and adrenalin. Circulatory changes are negligible if either is omitted. Systemic effects are to be attributed to the enormous increase in intracranial pressure which causes first a circulatory stasis, then asphyxia of the central nervous system with increased respiration and finally a smothering sensation.

In clinical cases the maximum rise in the blood pressure averaged 34.2 per cent and was greatest in those showing the most marked reaction. Therefore to increase the safety of local anesthesia measures should be directed toward lowering the

pressure rather than the arterial systolic local anesthetic should be eliminated completely if possible or if it must be used should be applied some time after the injection of the adrenalin and cocaine.

(10) R. M. AUSTIN, M.D.

**Crawford H. T. R. I. The Influence of the Chemical Structure and the Local Anesthetic Effect of N-Alkylized Leucine Esters of 2-Amino-benzic Acid (Urbach, Liebermann and Scherck, in *Annalen der Pharmazie und Toxikologie*, 1935, 1, 1-10).**

Since the chemical structure of cocaine has been finally established we have learned how to obtain new anesthetic containing pharmacologically valuable groups. The following properties are essential: specific affinity for the sensory nerves, solubility in different fluid mediums, resistance to heat and a half-life which will permit the use of the drug with adrenergic. The author discusses the various recognized anesthetic and those still under investigation.

By esterification of gamma benzyl with the N-alkylized tertiary alkamine dihydrochlorides, substances are obtained which have chemically the same cocaine in the lengthening of the carbon chain and are characterized pharmacologically by increasing anesthetic effect.

These substances were tested as to their value for upper limb anesthesia of the extremities in relation to anesthesia of the sciatic nerve of the frog and in

the human anesthesia induced by intravenous injection in the arm. The individual comparative values in contrast to cocaine and benzoic acid are reported in the following table.

For practical purposes only the N-ethyl leucine ester of the gamma benzic acid requires consideration. The chemically pure substance does not cause irritation and acts on the cornea just as rapidly and completely as cocaine, a little more as powerfully as cocaine. The solution is sterilized by filtration and is as powerful as cocaine in inducing anesthesia of the maxillary branch of the trigeminal nerve.

(11) R. M. AUSTIN, M.D.

**Palm C. B. The Effect of Intense Relaxation under Anesthesia. *Clinical Medicine*, 1935, 24, 1-10.**

The author urges more attention to the posture of the patient under anesthesia. A lack of proper posture should be avoided under the head or back, the legs and thighs should be relaxed and the thorax should be relaxed. Relaxation of the torso of the femur, trunk and neck contributes to the patient's comfort by relaxing the tension on the abdominal wall.

From a study of 10,000 cases the conclusion is reached that if discomfort is paid to the patient's posture, the induction and maintenance of anesthesia will be facilitated, greater relaxation will be obtained, and the patient will be more comfortable after the completion of the operation after the operation will be very much better.

(12) R. M. AUSTIN, M.D.

# PHYSICO-CHEMICAL METHODS IN SURGERY

## ROENTGENOLOGY

Rollston Sir H Reld Sir A Knox R and  
Others X Ray and Radium Protection Com-  
mittee Revised Report B I J R d I 9 4  
ix 19

The known effects of overexposure to the X ray and radium on the operator to be guarded against are (1) visible injury to the superficial structure which may result in permanent damage and (2) derangement of internal organs and changes in the blood which are especially dangerous because of their insidious onset

As general precautions the authors recommend limitation of the working hours to not more than seven a day outdoor life on Sun day and two half days each week and an annual holiday of one month or two separate fortnights

Protective measures are described for the various types of installation In all cases the X ray tube should be enclosed as completely as possible by protective material equivalent to from 2 to 3 mm of lead In doing fluoroscopy the operator should further protect himself with lead rubber gloves and an apron and with goggles In radiography the operator should stand behind a leaded screen Treatment rooms should have their walls (and when necessary the floor and ceiling) lined with lead from 1 to 3 mm thick All rooms should be well ventilated well lighted and above ground level

With regard to the prevention of injury from electricity the authors state that concrete floor should be covered with wool cork linoleum or rubber Overhead conductor should be tubed or rods and at least 9 ft above the floor All metal parts should be earthed and all main and supply switches should be accessible and distinctly marked

Radium should be handled only with forceps and carried from place to place in long handled boxes lined with 1 cm of lead When not in use radium should be stored in boxes with walls of a thickness equivalent to not less than 8 cm of lead

CH L S H H AC K MD

Sittenfield M J The Evaluation of X Ray and Radium Therapy in Cancer and Its Future Outlook R d I g y 9 4 7 4

The author reviews the various types of malignancy and endeavors to place the value of radiation therapy in each type In malignant affections of the lymphatics the X ray and radium are the most valuable therapeutic agents at hand in fact so valuable that in lymphosarcoma a diagnosis of disease response to radiation is regarded as of diagnostic value Surgery is unsatisfactory and may even disseminate the lesion

In carcinoma of the uterine cervix these agents are of equal value with surgery in the early cases The best results are obtained by the combined use of radiation and surgery In the inoperable cases although the percentage of cure is small radiation is of great value as it prolongs life in comparative comfort

In 138 cases of carcinoma of the breast which were treated by the author a cure lasting for from one to four years was obtained in 83 per cent of those in which there was no recurrence or any clinical manifestation of the disease at the time of the prophylactic radiation When recurrences or metastases were present the results were unsatisfactory a cure being obtained in fewer than 20 per cent

The result in superficial malignancies is good but in inoperable carcinomata of the cavities of the body radiation has given only negligible results

Our knowledge of the therapeutic value of wave lengths is still very faulty The different wave lengths seem to have a differential action Russell found that the skin is six times as tumor tissue to one eight tenth times more sensitive to the long wave than to the short waves

Another possible line of research is suggested by the fact that tissues may be rendered sensitive to light by the injection of certain fluorescent substances such as Bengal red eosin chlorophyll and hematoporphyrin Sunlight is responsible for an artificial chemical change in the injected substance which renders this otherwise harmless agent toxic and kills the animal after producing a definite train of symptoms

Technical advances and physics have advanced beyond our knowledge of the biological anatomical and histological bases for radiation Some of the problems still to be solved are (1) the lethal dose for every type of malignant growth (2) the relative radiosensitivity of the different tissues (3) the reason why cancer tissue is more radiosensitive than the normal tissue from which it sprang (4) the reaction of a given tissue to a definite wave length (5) the relationship of lymph nodes to cancer and (6) the methods of meeting the seeming decrease in the operability of cancer

CHARLES H HEAC K MD

## RADIUM

Stenstrom W Methods of Improving the External Application of Radium for Deep Therapy I m J R I g I 9 4 176

In certain cases the radium pack has advantages for external radiation in deep therapy namely ease of application and constancy of irradiation Serious disadvantages in the old fashioned pack are the

difficulty of screening undesirable rays and the difficulty in obtaining the proper distribution of the gamma rays within the body. Moreover with a reasonable amount of radium a great distance and a long time are necessary to obtain a depth dose comparable to the depth dose from filtered roentgen rays produced by 200 kv.

The author describes a rotating container attached to a stand which he devised to utilize the advantages and overcome the disadvantages mentioned. With this applicator it has been possible to obtain approximately the same depth dose in 17 gm. hrs. as that obtained in 60 gm. hrs. with the old pack. The greatest advantage of the new pack over the old one is that the amount of radiation absorbed within a cylinder directly under it is about one-half the total amount absorbed by the body while for the old pack this relation was 1 to 10.

Packs of this construction can be of value only in hospitals possessing large quantities of radium. It is still too early definitely to determine their ultimate success in all cases but the results so far are very much better than those obtained with the old pack.

The new pack cannot of course compete with the roentgen ray tube in economy as an enormous quantity of radium is needed to produce the same effect in the same time. However in many cases the peculiar distribution of the radiation makes the pack more suitable than the roentgen ray tube. For instance it may be employed to administer a heavy dose into the lower jaw and the tongue from beneath the chin and to obtain a good distribution of radiation in the larynx. It is of value in the treatment of certain breast tumors and axillary metastases as it saves the sensitive surrounding tissue from

heavy radiation and it has proved effective also in the radiation of the prostate and vulva.

ADOLPH HARTUNG, M.D.

### MISCELLANEOUS

Thomson, J. E. M. *The Use of Physiotherapy in Certain Orthopedic Conditions with Particular Reference to the Usefulness of the Actinic Ray.* J. R. & I. 974 46

The use of the mercury quartz lamp is relatively new in orthopedic surgery although other physiotherapeutic measures have long been recognized. To estimate the value of the actinic ray the quartz lamp was used in sixty of 110 cases. The conditions selected for radiation were: fractures eight cases, arthritis, neuritis, bursitis, twenty-four cases, osteomyelitis, five cases, burns, four cases, open wounds, eight cases, and miscellaneous conditions, eleven cases.

In the cases of fracture the actinic ray was used about eight weeks after reduction and was combined with manipulative exercises and massage. In the treatment of arthritis it was employed early except in the cases of spinal involvement. In the latter it was used as soon as the patient became ambulatory. All of the cases of osteomyelitis except one were acute. In the cases of burns all of which were third degree burns the ray combined with massage and passive motion caused softening of the keloid and rapid healing.

The author concludes that the ray acts as a stimulant to the system in general, relieves the pain during the acute symptoms by reducing the effusion in the region affected and hastens the ultimate cure.

CHARLES H. HECK, M.D.

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NOTE.—THE BOLD FACE FIGURES IN BRACKETS AT THE RIGHT OF A REFERENCE INDICATE THE PAGE OF THIS ISSUE ON WHICH AN ABSTRACT OF THE ARTICLE REFERRED TO MAY BE FOUND.

## SURGERY OF THE HEAD AND NECK

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## SURGERY OF THE ABDOMEN

## Abdominal Wall and Peritoneum

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